Reflections

van Stam, Gertjan

Publication date:
2017

Document Version
Publisher's PDF, also known as Version of record

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A Narrative on Displacement of Technology and Meaning in an African Place

Gertjan van Stam

Harare/Masvingo, Zimbabwe

Macha, Zambia

Tilburg, the Netherlands

2017

Reflections

A Narrative on Displacement of Technology and Meaning in an African Place

Proefschrift ter verkrijging van de graad van doctor
aan Tilburg University
op gezag van de rector magnificus, prof. dr. E.H.L. Aarts,
in het openbaar te verdedigen ten overstaan van een
door het college voor promoties aangewezen commissie
in de aula van de Universiteit op vrijdag 15 september 2017 om 14.00 uur
door
Gertjan van Stam
geboren te Rotterdam

Promotores:	prof. dr. M.E.H. van Reisen
	prof. dr. M. Mawere
	prof. dr. ir. G. van Oortmerssen

Promotiecommissie:	dr. T.F. Bissyandé
	prof. dr. B.H. Krogh
	prof. dr. J. Mutale
	dr. J.H. Nouwen

Paranymphen:	His Royal Highness Chief Chikanta
	His Excellency Senator Chief of Chiefs Charumbira

Reflections

A Narrative on Displacement of Technology and Meaning in an African Place

Thesis submitted to obtain the degree of Doctor of Philosophy (PhD)
at Tilburg University
under the authority of the rector magnificus, prof. dr. E.H.L. Aarts,
to defend publicly before a committee
appointed by the college for promotions
in the auditorium of the University, Friday 15 September 2017 at 14.00 hours
by
Gertjan van Stam
born in Rotterdam

Supervisors:	prof. dr. M.E.H. van Reisen
	prof. dr. M. Mawere
	prof. dr. ir. G. van Oortmerssen
Committee:	dr. T.F. Bissyandé
	prof. dr. B.H. Krogh
	prof. dr. J. Mutale
	dr. J.H. Nouwen
Paranymphs:	His Royal Highness Chief Chikanta
	His Excellency Senator Chief of Chiefs Charumbira

Harare, 5 June 2017

Macha Works
Attention: Mr Fred Mweetwa, Director
Macha, Chief Macha Area
Choma District, Southern Province
Zambia

RE: Reflections: A Narrative on Displacement of Technology and Meaning in an African Place

Dear Director Mweetwa,

With this letter, I seek to inform you about the findings of my doctoral studies and research and to present the results of my philosophical and anthropological reflections entitled: 'Reflections: A Narrative on Displacement of Technology and Meaning in an African Place'.

The content of this letter is the result of our deep engagement and my ever expanding network of relationships in Southern Africa and beyond. The content of this letter has been discussed for dissemination to you with:

- His Royal Highness Chief Chikanta, Former Vice Chairman of the House of Chiefs, Kalomo District, Zambia;
- Mr Simbarashe Bishi, Chief Executive Officer, Murambinda Works, Murambinda Growth Point, Buhera District, Zimbabwe; and
- His Excellency Senator Chief of Chiefs Charumbira, President of the National Council of Chiefs of Zimbabwe.

These dignitaries represent the stakeholders in the local, national and regional communities who have participated in, and taken note, of this work in Africa. I am writing to you, in your capacity as Executive Director of Macha Works. Without your support and the blessings of the respective communities, this letter would not have been possible.

The purpose of this letter is to provide you with the dissertation on my transdisciplinary research, commenced after presentation of the work of Macha Works in Lusaka at the

Zambian House of Chiefs on 14 May 2009 and at the Scientific and Industrial Research and Development Centre (SIRDC) in Harare since 1 January 2013.

The scientific assessment and dissemination of my work has been encouraged by you and my colleagues at Macha Works (Zambia) and Murambinda Works (Zimbabwe) and has subsequently been embedded in my work in Southern Africa.

This letter is basically text framed as a doctoral thesis. Upon completion of a research proposal to Tilburg University on 1 September 2014, the Doctorate Board of Tilburg University in the Netherlands granted me permission to undertake my PhD (doctorate) at Tilburg University. The permission letter, reference 206.14.884, was dated 22 October 2014.

The subject matter in this letter is broad and fashioned as sets of ideas that feed into an argument that is cognisant of the strength of the African worldviews and cultures. In separate sections of this letter, I endeavour to paint an authentic picture through a treatise on contexts, processes, and results of my research.

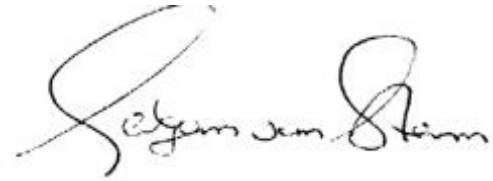
This writing is my own and I bear full responsibility for its content. Subsequently, I now submit this text for degree assessment by the doctoral review committee, assembled under the authority at Tilburg University, School of Humanities, in Tilburg, the Netherlands, in collaboration with the Great Zimbabwe University in Masvingo, Zimbabwe. I was encouraged to file this thesis by Prof dr ir Gerard van Oortmerssen, whom you know. Prof dr Mirjam van Reisen, whom you will meet soon, was instrumental in guiding me through the processes. They put in efforts beyond the call-of-duty. Prof dr Munyaradzi Mawere, Great Zimbabwe University, is presiding over the Commission that will approve my work.

As the assessment of the academic content of this thesis takes place in a Western place, an author is supposed to narrate about individual research from the position of an academic, presenting the content of the research in a linear and disentangled manner. This process also demands making explicit what is commonly known in Macha, but not readily known elsewhere, especially outside of the African continent. Of course, this position is discordant to my inclusion as part of the community in Africa. Therefore, I request your reprieve and permission for the presentation format and use of language contained in this letter.

By undertaking this thesis, I hope to prove useful as an intellectual bridge, presenting the wonderful achievements at, and examples of, Macha Works and other African communities in a manner accessible from a Western positionality. In that way, I hope that the experiences and deductions can become available to new audiences, who may benefit from the experience of Macha Works.

I hope that this work will be of relevance and add value to the academic body of knowledge, and I thank you for your continuous encouragements and moral support.

Yours sincerely,



Gertjan van Stam
3 Stratford Drive
Greystone Park
Harare
Zimbabwe

Macha, 9 June 2017

Gertjan van Stam
c/o Tilburg University, Warandelaan 2
5037 AB Tilburg, The Netherlands

RE: Reflections: A Narrative on Displacement of Technology and Meaning in an African Place

Dear PhD candidate Van Stam, Dear Gertjan,

Thank you for your letter, dated 5 June 2017, in which you report on your findings at Macha Works and beyond. You framed the form and language of the letter to be in line with the stipulations and demands for a doctoral thesis at Tilburg University in the Netherlands. I respect your endeavour to report on your African experiences in the country of your ancestors. I am grateful to your promotor and co-promotors for their guidance and support to you. I look forward to meeting them soon.

I was grateful for the opportunity to present and discuss Macha Works experiences at two separate occasions, in person, lecturing at Tilburg University upon invitation by Prof dr ir Gerard van Oortmerssen. Also, in Macha, we hosted many students from international universities. Therefore, I have first-hand experience of how one has to align the way of communicating to the context of a listener in an effort to build bridges among people in the global community.

Thank you for recognizing your community, from which your research emerged, and reporting to Macha Works first. I wish you success in furthering the intellectual and embodied lessons you learned in Macha and other African communities and hope it is of benefit in our collective and collaborative efforts for all of humanity to reach its collective and individual potential.

With kind regards,

Fred Mweetwa
Macha, Zambia

Reflections

A Narrative on Displacement of Technology and Meaning in an African Place

Part I. Observations from Rural Africa

Part II. Engineering and Technology in an African Place

Part III. The Age of Super-Colonialism and an African Big Five

Appendices

Acronyms and Abbreviations

DNS	Directory Name Services
ICT	information and communication technology
ICTD/ICT4D	information and communication technology for development
ITU	International Telecommunications Union
IEEE	Institute of Electrical and Electronics Engineers
OS	operating system
RPCIG	Research and Publishing Common Initiative Group
SIRDC	Scientific and Industrial Research and Development Centre
TCP	Transmission Control Protocol
UNESCO	United Nations Educational, Scientific and Cultural Organization
VoIP	Voice over Internet Protocol
VSAT	Very Small Aperture Terminal

Part I

Observations from Rural Africa

Contents

Chapter 1

Observations from Rural Africa: Enquiry, Meaning and Dissemination

Contents

Support is solicited for further research and development of ICT in rural areas, also with an angle towards supporting the preservation of African culture.
Request by Chief Chikanta and Fred Mweetwa [1:4]

Motivation to Observe Realities

In a paper published online from Macha, Zambia in 2007, Chief Chikanta and Fred Mweetwa [1] highlighted a number of needs for development in their rural areas that could be facilitated by information and communications technologies (ICTs). Subsequently, they made a request for academic research to facilitate local development, framed from the perspective of the preservation of African[1] culture. Since 2004, Chief Chikanta and Mr Mweetwa have gained experience with ICTs, through Internet connectivity provided by LinkNet in the rural village of Macha [4].[2] This was several years before the arrival of the mobile phone[3] in their customary lands.[4] In a direct response to this request, and after much interaction with an ever-expanding group of stakeholders [6], community members encouraged me to formally research and develop technologies that are holistically embedded in the context of rural areas in Zambia and Zimbabwe.[5] In the process of this academic enquiry, I have been in awe and

[1] Both Mr Mweetwa and Chief Chikanta reside in non-urban areas, respectively in Macha and Chikanta, Choma and Kalomo districts, Zambia. Chief Chikanta is a former Vice Chairman of the House of Chiefs in Zambia. Their reference of African culture is linked to their experiences, predominantly lived in rural areas and so-called traditional settings. Of course, the term 'African' covers a set of highly-diverse realities. In his study of the label 'African', Thaddeus Metz, argues it to be a geographical label that refers "to features that are salient in a locale, at least over a substantial amount of time. [Geographical labels] pick out properties that have for a long while been recurrent in a place in a way they have tended not to be elsewhere. They denote fairly long-standing characteristics in a region that differentiate it from many other regions" [2:1176]. In this thesis, I adhere to Metz's view on the use of geographical labels and when I use the label 'African', as scripted in the request made by Chief Chikanta and Mr Mweetwa, I seek to refer to the realities that they and their peers might recognise as features that are salient in their locales over a substantial amount of time.

[2] Macha is the core village in Chief Macha's area, in Choma District, situated in Southern Province in Zambia. An ethnographic epistle describing the Macha community, the policy framework and local use of ICTs and the LinkNet Internet network at Macha Works is available in my study titled: *A Strategy to make ICT accessible in rural Zambia: A case study of Macha*, published at the Nelson Mandela Metropolitan University (NMMU), Port Elizabeth, South Africa [3]. Chikanta Chiefdom is located adjacent to and west of Macha Chiefdom. In 2010, Fred Mweetwa assumed the position of Chief Executive Officer of Macha Works.

[3] The first mobile phone booster (transmission tower) arrived in Macha Chiefdom in 2006 and in Chikanta Chiefdom in 2014.

[4] "Customary land is controlled by the chiefs and their headmen but [they] act with the consent of their people" [5:np].

[5] In a collective effort, members of the community of Murambinda started with Vision Internet in 2001, by operating an Internet cafe in the growth point of Murambinda in Buhera District, Manicaland, Zimbabwe. It was from personal interactions between the community members of

wonder at the complexity of African society and the general ignorance of that complexity of those from outside African communities [7].

Trying to make sense of my experiences and observations, and in an effort to draw out explicit and implicit *meanings*, from 2010 onwards, I dedicated myself primarily to research and the theory of development[6], with specific reference to rural Africa. While 'living-the-life' [12] in the communities, I have struggled with the implicit master-narratives that frame most of the academic, political and economic discourses. These undercurrents were new to me, as social science was not included in my vocational training as an engineer.[7] Therefore, I had little exposure to theories outside of the natural sciences and seminal literature in ethical management.

Since 2000, while assimilating into African communities, I delved into social science and wrestled with its inputs and intersectional theories from my standpoint within rural Africa. While reflecting on these theories, and in an effort to apply them in my everyday life, I became aware of how many of my deductions did not resonate with these highly-regarded authoritative writings. The context descriptions seemed foreign and the perspectives and theories peripheral. Much of the content of these writings seemed linked to questions that were irrelevant to my experiences in rural Africa. Furthermore, the theories appeared to be incompatible with how life presents itself to people

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Murambinda and Macha that the Macha community received its first inspiration for how to implement information and communication technologies and services. Since 2003, members of the Murambinda and Macha communities have visited each other and compared experiences.

[6] In previous work, I wrote: "with regard to a [local or national] literature base, a few (small) books have appeared through the years, often written by [American] missionaries or doctors positioned *for a season* at Macha Mission. These books are not [indexed] and difficult to find. ... On a provincial scale, books on Tonga culture do exist, though hard to find. Elizabeth Colson, an American anthropologist, published extensively on the Tonga, for example, *Tonga Religious Life in the Twentieth Century* [8]. [...] Another source of history is Hobson's *Tales from Zambia* [8], and Gewald *et al.*'s *One Zambia, Many Histories* [9]. However, these publications are relevant for contextual analysis only" [10:165]. Regarding the vernacular: "Tonga has no literature base" [11:online]. Therefore, necessarily, only literature produced in imported languages from outside of the context are available for research.

[7] My formal education focused on engineering at Middelbare Technische School (MTS, Medium-level Technical School, 1979–1982) in Dordrecht and the Hoge Technische School (HTS, High-level Technical School, 1982–1987) in Hilversum, the Netherlands. My subsequent career in telecommunications and strategy development was embedded in the technology-loaded environments of telecommunications service providers in the Netherlands, Belgium and South Africa, among other places.

(including academics) in rural Africa.[8] Nevertheless, these 'peripheral works'[9], while being difficult to access[10], continue to receive a lot of attention[11] in research and academic circles.

[8] Reflecting on his meetings with academics and researchers in various parts of Asia's so-called Least Developed Countries (LDCs), community informatics academic Michael Gurstein observed "A consistent theme that emerged from my discussions was confusion and frustration that many of these colleagues expressed at trying to fit the dead hand of their received discipline-based knowledge and training into the urgent vibrancy of the requirements for their skills and engagement in the world just outside their doors." [13:online]. Those in informatics are not alone. In a corresponding observation, John Mbiti tells the tale of the homecoming of a Western-trained African theologian who is shown to be *embarrassingly impotent* in the face of the realities in his home village in Africa [14:7–8].

[9] Cognisant of the centrality of the local, indigenous knowledge, I label exogenous academic works as *peripheral works*. Munyaradzi Mawere defines indigenous knowledge "as a set of ideas, beliefs, and practices (some of which have indigenous religious underpinnings) of a specific locale that has been used by its people to interact with their environment and other people over a long period of time." [15:59]. On the same page, Mawere shows how Dennis Warren [16] differentiated indigenous knowledge (which Warren labelled as *traditional, local knowledge*) developed by a given community from "the international knowledge system, sometimes also called the *Western* system, which is generated through universities, government research centres, and private industry" [*ibid*.]. From these inputs and my reflection on dominant theories, I deduce the existence of a bifurcation inspired by the positionality of knowledge production.

[10] Discussions on how to gain access to – or share – academic writings are frequent among academics in Africa. Tim Unwin [17] regards this discussion as something of a myth and provides for suggestions for free access to the bulk of research materials online. However, in everyday practice, access to academic works remains challenging due to low Internet speeds and digital exclusion. Pay walls set up by publishers necessitate credit cards and disposable income to pay for access to literature, rendering them inaccessible to most African people. From efforts in Macha and other African locations, and from many international travels, I have deduced that there are severe limitations in the timely, relevant and reliable service-provisioning of book shops and libraries in many African countries. Lastly, there is a consistent lack of exposure to sources of academic work. For instance, many of my African colleagues and I are not exposed to a full access situation where a university has a paid-up, easy to use access to subscription-based academic repositories or a well-stocked library. Therefore, we do not know what that is like. In general, in Africa, gaining access to academic documents takes stamina, persistence, relationships with colleagues in affluent areas, and usable and, thus, costly Internet connection [18:5].

[11] Chitu Okoli and Kira Schabram [19] quote Arlene Fink's [20] definition of a literature review as "a systematic, explicit, [comprehensive, (p.17)] and reproducible method for identifying, evaluating, and synthesizing the existing body of completed and recorded work produced by researchers, scholars, and practitioners." [19:3]. Okoli and Schabram deduced that a review of the literature must be systematic, explicit, comprehensive and reproducible [19:1]. Further, they state that in a doctoral dissertation "authors are expected to present themselves as experts on the subject matter, the review serving as a justification for the novelty of the student's work. Their complete dissertation will summarise, analyse, criticise and build on the literature they are reviewing to facilitate future academic discussion" [19:3]. Based on from private conversations with academic reviewers – all living in places of affluence – the availability of documents in Western universities seems to be the benchmark and the citing of the knowledge produced in the West the default frame of reference. Shamefully, the antithesis is not the case: one does not

It requires great imagination to be able to see how local communities might relate to these contextually untested claims about the relevance of the data, the validity of the methodology and analysis, and the conclusions.[12] I also do not recognise the utility of the presented outcomes for the communities I have connected and interacted with in rural areas. The contradiction between the claimed relevance and the irrelevance that I perceived *on site* is a pregnant source of questions about what many academics seem to report on – what data *they* gather, how *they* analyse, and what *they* derive as *their* conclusions – compared to what I have deduced from my day-to-day experiences residing with my family in Murambinda, Zimbabwe (March 2000 – March 2003), Macha, Zambia (April 2003 – December 2012), and Harare and Masvingo, Zimbabwe (since 2013).

Enshrined master narratives *about Africa* are mostly foreign and aberrant from indigenous experiences in daily, diverse African reality[13], especially in rural areas. It is said that the world is shrinking[14], however, it seems that African epistemologies are little understood or valued. As a result, diversity perishes.[15] Our understanding of the shifting patterns in life, with its multiple forms of modernity[16], seems to be subdued by

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expect a (Western) author to be cognisant of the latest work in the field from areas like, for argument sake, Burkina Faso, Kenya, Laos, Paraguay, or Zambia.

[12] In the context of exogenous research, I prefer the word *idea* to that of *theory*, as the latter implies a valid conceptual definition, the validity of which I herewith challenge.

[13] In an eight-minute talk in the reverted series on Technology, Entertainment and Design (TED), claiming to amplify *Ideas worth spreading*, Ernesto Sirolli gives an honest account of his failures pre-mediated by pre-conceived ideas as an aid-worker in Zambia, he concludes "Want to help someone? Shut up and listen!" [21]

[14] Scott Kirsh observes that while we stand "enthralled by the history of the shrinking world – the annihilation of space through time – we tend to lose sight of its geography" [22:545]. I regard the shrinking world narrative as a vehicle for the dominating push for homogeneity – as tangible practice of the idea that "normalization becomes one of the great instruments of power at the end of the classical age" [23:184].

[15] The General Conference of the United Nations Educational, Scientific and Cultural Organization (UNESCO), at its 33rd session in Paris, 2005, noted that "while the processes of globalization, which have been facilitated by the rapid development of information and communication technologies, afford unprecedented conditions for enhanced interaction between cultures, they also represent a challenge for cultural diversity, namely in view of risks of imbalances between rich and poor countries."[24:2]

[16] The term *modernity* is value-laden and a fruitful topic of philosophical debate. Its discourse links with colonial discourse and the process of imperial expansion. Olúfémi Táíwò states that "modernity refers to that movement of ideas, practices and institutions that originated in Europe the roots of which are generally traced to the Renaissance, moving through the voyages of Discovery, the Reformation and the Enlightenment" [25:2], while, on the other hand, Bruno Latour [26] contents *we never have been modern*. Jay Ciaffa [27] positions modernity in the setting where cultural relativists – stating that genuine modernisation in Africa can only be

the consolidation of power in foreign centres, centred around humanity as culminating in the utilitarian exploits of *homo economicus*.[17] This view is geographically and philosophically far removed from the African reality, especially in rural areas. However, dominant knowledge production seems to focus on the needs of the powerful at the expense of the needs and dignity of *homo situs*[18], the people in the neighbourhoods I lived in.

This work has been done in full consciousness of the implicit and often contradictory nature of the endeavour. These observations, and the work at hand, are well typified by Bert Olivier, who states that in contemporary society:

> *…paradoxically, individuals are encouraged to think outside of the box, but when they really do, they soon find themselves in trouble. The reason for this is obvious: the kind of lateral thinking that is encouraged is supposed to serve the optimization of the system, in the end, but radically lateral thinking, which questions the system, is rejected*. [31:14]

The more I reflect on the research context, the more I recognise that textualisation can only provide a token insight into the lived environment, as texts decontextualize and decompose.[19] Aligned with the holistic and inclusive nature of the African contexts, I 'co-conversationalise', I co-interpret and I co-live. In this manner, I oscillate between complicity with various narratives and the pre-emption and deflection of conclusions [7, 12]. Likewise, I read with both interest and repulsion the literature from foreign

realised through the revitalisation of African cultural norms – clash with their critics. An issue remains the expropriation of words by epistemological strongholds. In my view, when one regards all communities to exist in *contemporary times*, or in *times in modernity*, there I regard there are many forms of modernity, and, with a wink to Latour, state: we all are (living in) modern (times).

[17] Homo economicus is "an individual who is supposedly totally rational, selfish and calculating" [28:np], "making rational decisions about expenditure, consumption, production and investments" [10:94]. As if a prelude to what is to come in this document, Dorine Eva Van Norren suggests the dichotomy that "the Western social contract school takes the competitive human being and homo economicus as its starting point and the African Ubuntu school the cooperative human being" [29:262].

[18] Homo Situs features a "composite and situated rationality, whose descrambling requires more complex models than the one provided by the regular economic rationale" [30] as quoted in [28:np].

[19] See Chapter 3 of this document. I lamented that "tension confronts the scientific precept that information can only be validated when it exists in written form. Such guidance does not make sense in the communal, oral tradition of rural Africa. Such thought masks comprehension of the holistic African reality and omits the existence of oral interaction formats like sensitisation by, and appropriation through, participatory community discussions, formal community meeting (Tonga: *muswangano*, Shona: *musangano*), sketches (*chisobano*), musical lamentations (*kuyabila*), singing, dance (*kutazula*), and multimedia (second orality) representations." [32:online]

realms.[20] However, daily constraints require one to construct a responsible life that balances various responsibilities[21] and embraces an *individual naivety* by discarding preconceptions of *knowing as an individual* and yielding to *knowing as a community*.[22] I have consciously submitted to (certain aspects of) structure, for example, submitting a PhD proposal upon invitation by Tilburg University, and withstood others, for example, subscribing to *foreign methodologies*.[23] In unapologetic reflexivity, I brood upon my existence. These reflections set me upon hills where I have enjoyed the beauty of the sheer diversity and complexity of life and ushered me into deep valleys where I found myself pushed into a depressive state of mind as I witnessed social injustice, misrepresentations, and the outright neglect of large swathes of people.

This study is one textual contribution resulting from a whole set[24] of interactions and communications, in response to the solicitation of research in rural Africa, as cited at the start of this chapter. The text endeavours to sensitise the reader on, further

[20] "Since the beginning of what has come to be understood as formal education in Africa, knowledge 'experts' from the global North, particularly Europe and North America, have assumed the role of generating knowledge for Africa and the rest of the world" [33]. Tegawendé Bissyandé *et al.* exclaim about papers in the Africa centred Africomm conferences: "as readers of papers from previous sessions of this conference, we always wonder to whom the authors make suggestions of such ideas. Indeed, often, the techniques appear to be unrealistic given the available resources and the cultural model in developing countries as well as their priorities" [34:95–96]. Due to the Western-dominated peer-review system, even within Africa, papers mostly seem to mimic Western academic practices and orient towards an audience positioned in Western epistemology [15, 35, 36].

[21] I resonate with Stephen Covey's narrative of the distinct roles one plays in various scenes of one's life, as he penned in his classic *The 7 Habits of Highly Effective People*. Although he limits his focus to individual agency, in the book he is describing the distinction of roles of persons in line with their relationship in various circumstances [37:135]. In the fluid, holistic African environments, it seems not so much a switching between alliances or roles, but more like a *changing of expressed interaction* as within a metaphor of light, where one changes the colour of light by modulating the magnitude of radiation of red, blue or yellow Light Emitting Diodes (LED) in a composite light source, depending on the circumstance.

[22] In the book chapter: *Ubuntu, Peace, and Women: Without a Mother, there is no Home*, I qualify this naivety as "In the lived environment, the author positions himself as a curious observer. This involves an attitude of sympathy for any situation, searching for what it feels like for the local actor to behave the way he/she does. This curiosity is exercised with caution, so as to not fall into the trap of contempt, where the rural activities could be regarded as less developed, or – the opposite – practice would be viewed in a romantic reverence" [38:40].

[23] In a rampage against scientism, Munyaradzi Mawere and I "argue that it is only through epistemic pluralism – methodological pluralism/diversity – that world societies could possibly achieve symmetrical relationships in the areas of knowledge production and socio-economic development" [39:195].

[24] The whole consists of all my human interactions, as well as papers, book chapters, public addresses and lectures, and so on. A partial listing is contained in Appendix III and IV.

develop, and strengthen a range of counter narratives.[25] These counter narratives obverse the demand for compliance with the effects of the dominant perspectives that shape social life as well as the demand for conformity with hegemonic forms of social-economic activity.

I hold that all of us lead interesting, unique, wonderful and purposeful lives[26] – lives that are full of meaning, love, and diversity. However, domination implores constraints upon the living and aims to render people *docile bodies*.[27] In the meantime, I consider us all to be responsible, moral beings, stewards of our environment and of our own lives and those of the people in our families and communities [42]. Our belief systems, moral virtues and decisions today are significant and influence the future [43]. Therefore, I regard engendering the growth of understanding as a calling and, in response to that calling, I have undertaken this research. In my view, the more we *come together*[28], the more we must accommodate and celebrate our diversity and keep each other accountable in love[29], for the future and for the survival of humanity.[30]

Statement of (Non-)Compliance

I do not claim to have read everything on the subject matter, and I have *purposely* limited my exposure to literature from the West[31] that speaks *about* Africa. This was in

[25] Michael Bamberg considers engaging with counter narratives as a social interactive practice and an important means of understanding the constitution of *identity* [40]. In my book *Placemark*, I share experiences in recognising the various narratives playing out synchronistically in various parts of the world and what dawns upon someone reflecting upon its interaction in an African life [7].

[26] In this, I resonate with the Christian and African perspectives that human beings were created by God's will, not by accident [41:277].

[27] Michel Foucault regards *docile bodies* to be the result of discipline, which produces subjected and practised bodies: "disciplinary coercion establishes in the body the constricting link between an increased aptitude and an increased domination" [23:138] and, in that manner, positions people for adherence (to the master-narrative, in this argument).

[28] Bishop Desmond Tutu sums up the importance of relationship in the adage that *being together* is the ultimate goal of our existence [44].

[29] Thaddeus Metz in his treatise *Ubuntu: The Good Life*, regards *ubuntu* as encompassing "... the union of sharing a way of life and caring about 'others' quality of life is basically what English speakers mean by a broad sense of 'friendship' or even 'love.' Hence, one major strand of traditional African culture places friendly (loving) relationships at the heart of how one ought to live" [45:6763].

[30] In view of the ecological disaster percolating from dominant seats of power and neo-liberal capitalism run wild, I believe that mutual understanding and thoughtful consideration of counter narratives, especially those in which we share our humanity and its resource base, are imperative for the ecological survival of humanity [46, 47].

[31] Although the centres of the global economy have been shifting to places outside the initial Western countries in Europe and North America, in view of the colonial sensitivity of this

order to try to find and keep in balance inputs from the West and 'the Rest'.[32] Moreover, I do not claim – or wish – to fit in with a Western-dominated epistemology, nor do I claim to fit into an African epistemology setting.

I am a person born outside of Africa (in 1965). My visits to Africa started in 1987. Since 2000, my family and I have lived full time in Africa. I commenced my post-graduate academic pursuits in rural Africa in 2006, at the invitation of academics in African universities. Therefore, significant parts of my formative years as a person, and certainly as an academic, took place in a culture outside that of my parents. This positions me as a hybridised individual, both within Africa and within academia [50, 51]. I do my best to access whatever information I can from my privileged (albeit non-remunerated)[33] position and unique location in rural Africa.

The work for this book took place within the highly volatile constraints imposed by administrative permissions, finances, travel opportunities, equipment and the other tangible and intangible resource available to my family. In the local context, Internet access was purchased from LinkNet, the Internet programme of Macha Works and various local Internet service providers and mobile networks in Zambia and Zimbabwe; it was also accessed at the Scientific and Industrial Research and Development Centre (SIRDC) in Harare, SolidarMed in Masvingo, and other locations where I was able to use available networks.[34]

I am exceedingly grateful to all of my non-Western friends, who – sometimes after long periods of scrutiny of my behaviour – accepted me into their communities. Knowing the perceived balance of (dis)advantages of such affiliation, this is a huge and much-appreciated gift that I cherish. Without the gift of relationships and love, outcomes like this document are unattainable.

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research, in this thesis, I use the term 'the West' as an as equivalent to the capitalist elite class [48], wherever they are. In this sense, 'the West' can include countries in Asia, like – and international companies in – Japan, South Korea, and China, depending on the context of the statements.

[32] W.E.B. Du Bois seems to have taken the same approach against entrenched/embedded obsequiousness, when he did not read Carnegie's *Wealth* essay before (or after) meeting with the astute philanthropist at the time [50].

[33] My privilege is manifold and made possible by a seasonable infusion of generosity from family and friends and particularly by my spouse, who has marketable skills and the stamina to hold a steady job.

[34] Internet access, although crucial in contemporary research, is constrained by environmental, technical skills and cultural persuasions [54]. In my day-to-day activities in Africa, the Internet is hardly ever up to the task at hand, due to inequalities and the ever-growing digital divide and digital exclusion [3, 52–56].

I love my family and my friends; without sustaining our meaningful, reciprocal and vulnerable relationships, embedded in a vibrant faith[35], I would be lonely. In view of my calling – which is tested and confirmed in my relationships – my life in Africa makes sense, although it appears quite dissimilar to that of my peers in both Africa and elsewhere and unaligned with the dominant measures of success. I value the lives of all those I encounter in my daily affairs, anywhere in the World. I associate with notions like the 'Frontier African', coined by Francis Nyamnjoh [58], and the hope for an 'African Renaissance', as expressed by Thabo Mbeki and others [59, 60]. I believe the world needs augmentation as to what the African philosophies, epistemologies, ontologies, and other representations of *ways of life* have got to offer the whole.

I am dismayed by most neo-liberal and neo-colonial escapades and call practitioners informed by such ideologies to account for contemporary global inequality, ecological devastation, unhealthy forms of nationalism and systemic oppression [61]. In my view, rampant individualism is to blame for the deflation of communal love and the demand for social-economic compliance devoid of communal meaning. I agree with the view that current forms of globalisation can lead to a cultural wasteland. Further, I regard many countries in the West as overdeveloped, and approach loneliness and exclusion as the resulting disease (and many health complaints as its symptoms).[36]

In this work, I reveal a reflection upon myself and my immediate surroundings. This dissertation is contingent on who I am. All my characteristics and features shape my entry and performance in any situation, as well as how people interact with me [64]. I reject the notion that this text can represent anything else than a view of reality that I have recorded from my perception of various environments. My theorisation represents my best effort, constrained by my abilities and a life lived primarily in Africa.

Religious framings colour the views on African rationality and capacity. Spirituality provides pointers for a hermeneutical understanding of identity in an African place [65], like anywhere else. I regard religious sensitivity to be an integral part of my reflections in an African place. My own beliefs – embedded in a Christian narrative – and framings provided for by African cosmologies are integral to this study. However, it

[35] I align with the philosophising chemist, Michael Polanyi, who wrote "one must recognize belief as the source of all knowledge" [57]. Likewise, as in previous work, I state "that faith is the ultimate source of the knowledge packed into this dissertation. Through this monograph, I invite you to believe" [3:xii].

[36] The British writer George Monbiot provides grounds for loneliness being a *disease* in the English newspaper The Guardian where he links both under the title 'The age of loneliness is killing us' [62]. Richard Wilkinson and Kate Pickett show how equal societies have a more healthy population than unequal societies, based upon an impressive rendering of statistical evidence [63].

is not the purpose of this work to explicitly bring out the academic positioning of these and other religious believe systems. Although vitally important, I hope to contribute to such subject in further works.

I strive to continuously grow in understanding of the ethical implications of my work, especially in its grounding in an African context. In acts of submission to governing authorities and to portray transparency at all times, I disclosed my roles, whether with the governments of the countries I live in or the so-called traditional authorities in areas I have lived and visited. Also, I constantly disclosed my work to professionals, peers, and audiences.[37] Through these interactions, I have started to appreciate how worldviews modulate our understanding of the rationality of experience [6]. Elaborating on similar observations in the African environment, Emmanuel Eze states that the *ordinary, vernacular, everyday experience* is "the epistemic locus and the moral index of both the fateful mark of freedom of thought and of diversity of identities [...] the reflective composition of the memories of the ruins of Reason; it is a series of histories of hopes and accumulated wisdom in the actions of worldly subjects of reason" [66:21]. He shows that experience and reflectivity go hand-in-hand. In my view, reflexivity is crucial to make sense of my African experiences. I endeavoured to be accountable through community deposits[38], called for by governing authorities (or uncalled for), within the constraints presented by access to the Internet, my physical and geographical location, and opportunities to travel.

In true paradox and using the Socratic method of knowing, I realise that the more I try to know, the more I understand that I am unable to know. For every step forward, the journey seems to demand two more steps. My search for understanding is like an expedition, demanding that knowledge should age into wisdom. I, therefore, file this text with humility and apprehension, knowing that this is just a footprint which

[37] In previous work, I disclosed as follows: "From mid-2003 in rural Zimbabwe and mid 2010 in rural Zambia, I withdrew from daily operational activities to observe the progress in the rural communities and validate from a more distant vantage point. At that time, my relationships with academics intensified in attempt to develop harmonising theories explaining my experiences. A framework of collaborative academic papers was embarked upon from within the rural area itself ... Debate on the activities in Macha intensified, as reported observations were scrutinised by academics through public and online debate." [32:online]

[38] I regard all my academic outputs, whether in text or oral formats, primarily to be *community deposits*. This links the output to the community, and defines the *why* of the dissemination, which therefore exist to ensure reciprocity, a balance in giving and taking, and an accountability in relationships. "Community deposits are stored in memory, pictures, videos, notes, report, sites, wikis, and other formats." [3:22] To be accountable to the global community, all my disseminations are reported on the Internet, and accessible at http://www.vanstam.net/gertjan-van-stam. Therefore, I use the term 'community deposit' in this document to refer to the individual contributions and totality of outputs I generate.

demands a commitment to wise stewardship. I will be grateful for any constructive response; I am committed to its ongoing progress and the development of community deposits by way of consecutive footprints.

Philosophical Basis and Competing Philosophies

Most academic research works within a philosophical framing set in a Western positionality [67]. From that setting, using the logic of Cartesian reasoning and systems of objectives, goals and measurements, such works often claim, explicitly or implicitly, to be valid for all environments in the world.[39] The Western paradigm, incorporating liberalism, places competition over survival [68].

As early as the 1940s, Valentin-Yves Mudimbe, among many others, recognised the development of knowledge to be organised in substantial congruence with *Western existence*, suppressing 'the other' in the name of uniformity [71:72].[40] Resulting methods such as evolutionism, functionalism, diffusionism and the like emerged before 1920, crowding out the need to understand *others* and their world, certainly from *their perspective*. An example is Herbert Spencer who coined the term 'survival of the fittest'. Following his intellectual interactions, preceding and following Charles Darwin and his economic theories, Spencer positioned the survival of the fittest as justified [72].[41]

However, Western philosophies do not necessarily – or even mostly – resonate with many African environment [73]. In a review of philosophies of education, Thaddeus Metz shows that careful observation and geographical labelling of 'the West' and

[39] Munyaradzi Mawere and I argued that "[t]he ontology that dominates knowledge generation and meaning making has, over the years, been promoted and empowered by certain political and economic systems championed by the global north. In particular, rationalist theory, which considers that decisions and actions are best based on particular 'facts' has reinforced an ideology of scientism. Scientism considers the scientific method of positivism to produce the most authoritative knowledge and tends to promote research, even in social sciences that is founded on empirically measurable data. This movement means Aristotle's *logos* is limited to an empirical rationalist set where knowledge is understood to be 'value free' and asocial. However, Aristotle understood the value of forms of knowledge that are context specific, a notion current science seems to have discarded to the dustbins of stupor in its strive for universally applicable propositions, models and methodologies." [39:194-195]

[40] Feminist philosophers provide for perceptive interpretations of the erasure of *the different*, *the particular* and *the unique* in the name of Western universality, for example, Adriana Cavarero [69] and Hanna Arendt [70].

[41] The term *Survival of the Fittest* – often misappropriated from the context of Spencer's and Darwin's thinking – and biological determination spawned Social Darwinism. Social Darwinism morally vindicated the predatory behaviour of the powerful in society – especially applied to capitalism and political power – and condemns those in lower strata of society [72]. In that line of thought, Social Darwinism condoned the segregationist tolls of colonialism.

'Africa' holds and that a generic difference between individualistic and communitarian views is recognisable [2]. However, Western philosophy might well be unsuitable for approaching an African environment, particularly as Africans did not participate in any of its philosophical birthing (for example, enlightenment, reformation, modernity) [27, 74–77]. In the academic arena, it appears that Africa is a spectator, confronted with outcomes only.

African philosophies, for that matter, operate in a distinct manner.[42] Many African philosophers see life in a holistic sense, from the perspective of the common good, and having a transcendent character. Human life is the pinnacle of the arrangement of realities. It emerges from the understanding of reality, unaltered or damaged, in which manner it can be given to the next generation. All aspects of life, for instance, the environment, are an integral part of human existence. African philosophies often include aspects like tradition, intuition, spirituality, and locality. Its *knowing* is rooted in community life, including a community's cosmology and epistemology. The focus of an African philosophy is one of stories of life and it aims to inform for the survival of the community. In an African paradigm, community always precedes the individual. The dust has not settled on our understanding of what is meant by an 'African philosophy', and in ongoing onslaught of alien and dominant views, the discussion will continue to have its effects on African epistemologies, metaphysics, ethics and aesthetics.

However, Western science disqualifies science based on an African cosmo-centric philosophy, valuing its focus on individualistic interpretations based on an anthropocentric belief about life. In texts, one must often rely on African intellectuals, who are mostly Western-trained and seem to primarily interact with scholars outside of Africa. Their training was set in the education system established by the former colonisers and their views were formulated under the influence of Western academic traditions.[43] Consecutively, their writings often involve dualism and the exposure of differences with Western views. This results in the evasive practice of writing about what *should be done*, instead of linking to – and expanding on – African practices and recognition of the value of 'embodied knowledge'.[44]

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[42] Due to the width of this treatise, I do not intend to explore African philosophy in-depth, but merely provide an introduction to it.

[43] Ali Muzrui laments "Who Killed Intellectualism in the Post Colonial Era?" [77], Sabelo Ndlovu-Gatsheni calls for decolonising the University in Africa [35] and Bert Olivier recognises in Foucault's work [23] a normalising judgment to force a ranking of individuals in relation to everyone else through the practice of examination, casing the individual in a *network of documentation*, and aiding an oversight through architectural design [31:13–15].

[44] Embodied knowledge is the term I use to describe a situated familiarity, awareness or understanding, often shaped by the presence of the body and knowledge beyond the brain. It exists in high-level mental constructs and enactments, in a transdisciplinary understanding of

Only a limited number of texts are written from a purely African starting point, after recognition of permission to explore African positional muses and the need to do so, through the idea of an African Renaissance. These works are generally focused on ethno-philosophy and explore indigenous philosophies in a systematic manner. Other writings involving African philosophy centre on political philosophy. Here, Frantz Fanon is a kick starter. Kwame Nkrumah, Ali Mazrui, Lovemore Mbigi [78] and others also address the subject matter. A next layer of philosophic writing links African thoughts with action, as in activism. Here, Julius Nyerere [79], Kenneth Kaunda, Reuel Khoza [80], Patrice Lumumba, and many others provide their contributions.

Balancing Technology and Embodied Meaning

As a trained and practising engineer, my worldview was rooted in a Western epistemology with its own set of values, definitions, and techniques, and their ideas, frameworks and models [81]. This epistemology highly regards objective knowledge with strict boundaries of artefacts, mostly recognised in a mathematical, physical and rational reality. Engineers are trained in dualist terminology, with an inherent emphasis on reification or 'thingification'. The reification identifies 'community' and 'individual' as items rather than a fascinating mesh of relations. I regard this urge to 'thingify' – to put a set of relations inside a category and then set a clear boundary around them – as limiting and selective. Here, industrial engineering is seen as separate from humanity (in the *hard sciences*). Bent Flyvbjerg describes this setting as elevating "rationality and rational analysis to the most important mode of operation for human activity" [82:23]. In such a state of mind, one is prone to see reality in binary opposites, which translates into a singular, essentialistic and dualistic approach to reality. The end result can be a belief in technology determination [18].[45]

It appears that dominant engineering concepts are of little use in situated embodied human interaction, where the concept of embodiment (from a Husserl-Heidegger-Ponty

contributions and perceptions from fields as diverse of linguistics, cognitive science, psychology and others.

[45] It seems only recently that engineers reported having individual epiphanies realising that the world is not technology determined, as their education and workplace seemed to suggest. Kentaro Toyama, former director of Microsoft India and an acclaimed academic in ICT for Development (ICT4D) published a book against the belief system of *technology determination* [84]. Interviewed about his book by The Guardian newspaper, he said "When I looked closely at what those issues [i.e., the issues in development projects] were, repeatedly it was lack of human capacity, lack of institutional capacity – in some cases corruption – dysfunction of various types. I'm a researcher, so my tendency is to want to find a pattern, and why this pattern persists. The only conclusion I could come to is that technology is secondary – ultimately the people and the institutions matter the most" [84:online].

phenomenological position [85]) does not argue for boundaries or singularity [86]. This contrasts with engineering's *natural positionality* as it recognises that meaning is embodied in the world. Thus, in interactions between people and society, meaning is *embodied in the collective*; any individual person is part of other people's worlds. This is what Heidegger's phenomenology and Bourdieu's deconstructionist-structuralist discussions show when they describe relations between people, practices, and their generative processes.

Feminist theorists show how a dualistic view of reality embeds patriarchal tendencies. Such a perspective opens up appreciation for interpretative approaches, recognising the subjectivity and embodiment of knowledge.[46] In this sense, all experience is part of a continuity of experiences, with a certain understanding – representing a mere spike in the smooth continuum of reality.

Of course, in an effort to provide for generalized statements on realities in an African practice of relationships, both views can provide input for the argument. Simplifying realities to abstract (almost mathematical equations) is not a sin, unless one describes it as a universal law, applicable to all, in all times and places. However, to believe in *technology determination* is a cardinal sin when one links it with an essentialist use, as if a certain technology results in, or is imperative to, certain outcomes. However, there are objective elements in, for instance, technologies – or geographically labelled areas for that matter – that can be recognised. These objective elements must be understood in their positionality. Understanding, therefore, varies with the locality from which one 'sees' (which includes the assessment from which worldview one approaches the elements, as we will see later). These objective elements – the ultimate output of this work – should, therefore, not be used in an essentialistic manner, but seen, as Thaddeus Metz suggests, "salient in a locale, at least over a substantial amount of time" [2:1176].

Ethical Considerations

> *The non-discursive expressions of scientific knowledge when reduced to abstractions in English texts seem to have little discernible effect on – or even defacto prohibits the inclusion of – oral societies. If the end product of foreign academic research is a take-away text written in academic English, then the*

[46] Steve Harrison *et al.*, in their paper: *The Three Paradigms of HCI* recognise three concurrent views on human-computer interfacing, which could be seen as a growing appreciation of the multi-versed reality in (computer) engineering from the 1st (man-machine coupling informing industrial engineering and ergonomics), via a 2nd (focus on information interaction symmetry) to a 3rd paradigm pivoting around the use-context [87].

foreign academic appropriates local culture for private and foreign profit, leaving the local community objectified and exploited.
Gertjan Van Stam [32: online]

The people who were involved in this research were from the local community, the national environment, the African continent, and the world – in that order. Each of these audiences will approach the research and its outcomes from a different perspective, embedded in their particular version of history and normative lenses. Furthermore, each of these groupings has its own preferred way of communicating. The main differences being preferences, such as for interactions rooted in orality for the local community [32] and presentations and textual deposits for academia.

Many encounters have contributed to this work, as during conversations all persons communicate and, thus, share information and perspectives. All persons expose embodied knowledge, for example, in non-verbal ways, and, therefore, anyone involved in any interaction with me has participated in this work. However, I acknowledge the primacy of the significance of the contributions by the local community. Without the local community's embrace, there could hardly be any outcome that could be beneficial for communal life. Although I have tried to position this document to be useful and comprehensible for all audiences mentioned – the local community, the national environment, the African continent, and the world – this effort is perilous due to the dissonance in the making and meaning of words in these different contexts and the risk of dissonance in the understanding of the methodological grounding.[47]

Previously, my publications were oriented to those who are technically inclined, or interested in the interaction between society and technology.[48] I am often recognised as an engineer by the dominant powers.[49] However, in rural African communities, I am not

[47] In the stipulations of research approvals, it appears that there is no connection with such primacy of value creation for the local community. I did not encounter explicit demands for community depositions or a stipulation to revisit the local community after the research is concluded. I have encountered many frustrated individuals with expressed feelings of *being exploited* in local communities and regional institutes who are puzzled as to why researchers are "asking all these questions". In 2015, for instance, I witnessed health experts in an operational unit of a government health institute unable to assemble an overview of who is studying what and when in their institute and, during 2016, I heard an operational manager from a middle-size municipality exclaim: "We get many requests to allow research in our municipality. We see students coming, and when they get their data, they are gone. We do not know what they do with the information. Only once did a student come back to bring a copy of the research report. This is strange, as we can benefit a lot from their work."

[48] At http://www.vanstam.net/gertjan-van-stam and at http://gertjanvanstam.blogspot.com.

[49] Examples of being recognised as an engineer are being a Senior Member of the Institute of Electrical and Electronics Engineers (IEEE), being an associate of the Informatics Institute of the

labelled as *an engineer*, but first and foremost regarded as *a person*. Therefore, positioning oneself only as a researcher, and to regard presenting a text in full academic fashion to an academic institution as an end result is, in my view, unaligned with local realities and in that sense unethical. The community could argue that such researchers would be guilty of taking – even stealing – the information and presenting it for one's own benefit and sometimes at the expense of the community. As this document is positioned to fulfil a requirement for academic assessment by a university, and the academic community is not able to bestow a degree onto the community, to position this writing for the benefit of myself as an individual person only without acknowledging the contribution of the community, could be regarded as unethical from the local community perspective, and could be labelled as an act of (foreign) academic appropriation [88].

I conclude that there is an ethical misfit in the conventional way of contributing text into mainstream academic discourse – by direct insertion into this discourse.[50] As there might be an advantage to having my findings included in academic discourse, and cognisant of the ethical considerations explored so far, I hope to alleviate some of the challenges by positioning this writing as a letter, referring to the encouragement of the traditional authorities of Zambia and Zimbabwe, in deference to their roles as authoritative representatives of highly respectful communities. I would hope this format ensures alignment with the communicative purpose of this text, while addressing the sequencing of the dissemination of information in a morally-sound manner. This format allows me to link the outcomes in a textual representation of my work within an African context and abroad. The letter format can be regarded as an almost universally understood concept of communication, which allows an individual to communicate in writing to any receiver, authority, and the world at large and receive a response in return [90].

Scientific and Industrial Research and Development Centre (SIRDC), and having acquired a Master of Technology degree from Nelson Mandela Metropolitan University, Port Elizabeth, South Africa.

[50] There are many more difficulties in providing such input, due to power distances, for example, the hegemony of the publication industries [89] and the restrictive formats in which contributions are accepted.

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Chapter 2

Contextual Research Based in Community Relationships

Contents

Like a lever, technology amplifies people's capacities in the direction of their intentions.
Kentaro Toyama [1:28]

Introduction

Kentaro Toyama's insight, quoted above from his book *Geek Heresy: Rescuing Social Change from the Cult of Technology*, is an outcome of years of introspective wrestling with conflicting observations in India. Technology's 'Law of Amplification' dawned on him in a manner that he describes as "a eureka moment" [1:29]. Toyama realised that the social capacity of people and their institutions determine the outcome of the application of technologies.[51]

In previous work, I (and my co-authors) explored how (ICT) engineering in African settings faces a wide range of constraints, which I categorised as environmental, skills and cultural ingredients [4]. Over the years, attempts to expand upon these constraints have failed.[52] Each change of the parameters of a technology involved with each 'upgrade' changes the meaning of the technology and its interaction in the local realm and, therefore, has consequences in the social realm. These consequences necessitate a new response and embedding in the local environment. I started to suspect that the embodiment of the designers' thoughts in the technology, and not its structure or function, affects human interaction, as if the designer had travelled to the community in a dismembered form, a realisation apparently not yet recognised by many technology practitioners.

[51] Kentaro Toyama participated in the panel that followed my keynote address on the question 'Is Technology the Solution to the World's Major Social Challenges?' [2] at the Global Humanitarian Technology Conference in Seattle on 23 October 2013. Together, we discussed experiences and compared notes during meetings in Berkeley, Atlanta, and Seattle. In his alter ego, the ICT4D Jester, Toyama commented on why Macha Works works [3].

[52] The difficulties involved in conclusively describing constraints might well be related to the assumptions embedded in hegemonic cultural taxonomies on how to approach constraints. Constraints are seen as *barriers to overcome* or *issues to solve*, and their descriptions serve to externalise them so as to position these as difficulties for alteration. This approach is based in Western thinking, which entertains a dichotomous view [5]. In this view, opportunities and constraints are seen as correlative parts of a journey that aims to address deconstructed fragments in their idiosyncrasy, as distinctive components affecting the attainment of an explicit, specific and progressive end (expanding on Tim Ingold's view of Heidegger's contribution in *Building Dwelling Thinking* [6:185]). It is quite telling that in the field of information and communication technology for development (ICT4D), the 2006 exogenic list of challenges involved in technology research *in developing regions*, which were primarily gleaned from experience in Cambodia, India and Ghana by California based researcher Eric Brewer and his team [7], continues to be viewed as representative.

ICTs – a rapidly growing and pervasive area of technology development – appear to have particular influence and are reaching an increasing number of people around the globe.[53] ICTs are a unique, value-laden conduit of information.[54] The rapid spread of ICTs has baffled many scholars, policy makers and industrialists alike, leading to a *tsunami* of stories and ideas in many different formats and settings. Many have attempted to explain this remarkable spread and speculated on its advantages, as well as, to a much lesser extent, its disadvantages.[55] However, in rural areas, large groups of people do not (yet) utilise ICTs[56] and remain isolated from this 'ecosystem'.[57]

Development discourse asserts that the unconnected are *in need of a solution*. Whether or not this is the case is difficult to assess, as the definition of 'help', like the definition of 'development', is highly problematic and its academic opinions fragmented. After many years of living in rural Africa, contemplating the totality of experience, it dawned upon

[53] The GSM Association (GSMA), representing the interests of nearly 800 mobile network operators, reports that there were 3.6 billion unique mobile subscribers, half of the world's population, using mobile phones at the end of 2014 [8]. In their report, the Association comments that "the unconnected population is predominantly rural" [8:3]. The Internet Society reports that 94% of the global population is covered by a mobile network, 48% are covered by mobile broadband, and 28% have subscribed to mobile Internet services [9]. In these reports, statements about rural areas are sparse, generic, and echo a dominant narrative of underdevelopment, poverty and challenging potential, although the urban/rural divide has not been quantified. This aligns with my observation that "access statistics provided by institutes like the International Telecommunications Union (ITU) do not differentiate between urban and rural areas. Although not explicitly mentioned, it can be expected that the information emerged from urban Africa only" [10:28]. Furthermore, there is no mention of gender differences in access, nor is access for people with disabilities addressed.

[54] Jeffrey Sachs saw the Millennium Development Goals as contingent on the availability of infrastructure, including for water, power, transport and information [11:256]. These facilities necessitate engineering, as ICT is the conduit for information, just as electricity lines are conduits for power, roads for transport and aquifers for water. The value-ladenness of communication technologies is shown in the extensive work of Nicola Bidwell, which is embedded in South Africa and Namibia, and also in the work of Gerard van Oortmerssen [12], who indicates that human values embedded in design affect the acceptability and usefulness of ICT systems.

[55] In the context of the Valetta Summit on Migration in 2015, Mirjam van Reisen and Tim Unwin [13] provide a list of the positive and negative effects of digital technologies, derived from expert meetings addressing possible use in the context of mobile phones, migration and human trafficking. Mirjam van Reisen and Munyaradzi Mawere expanded upon this work and report on the unintended effects of digital technologies in their book: *Human Trafficking and Trauma in the Digital Era* [14].

[56] Janneke van Dijk *et al.* [15] reported that, as of February 2014, of the 191 infants and their mothers enrolled in a prospective study on early infant diagnosis of HIV infection in Macha, Zambia, only 35% had ever used a cell phone.

[57] On the use of term 'ecosystem' to describe digital ICT systems, Tim Unwin states "... little is gained by adding the 'eco' to the 'system'! ... such usage is quite simply wrong, and corrupts the meaning of the word 'ecosystem'" [16:online]. However, adding the prefix 'eco' is in vogue, in analogy to the prefix 'e' that appear to signify an *informatisation* of the term following the prefix.

me that the push for Western-designed technologies as the *solution for (rural) Africa* resembles interventions embedded in colonial practices.[58] Such practices serve to undermine African cultures and world making – the topic under review as per the original request by Chief Chikanta and Fred Mweetwa (see Chapter 1). Subsequently, my research expanded[59] to encompass the wider make-up of human encounters and colonialism, especially in the context of (lack of) ICT utilisation in (rural) Zambia and Zimbabwe.

Academic Frailty: Inability to Facilitate African Research

> *The technological superiority of Europe was such that its small, mutually hostile nations could spill out over all the rest of the world, conquering, looting, and colonizing.*
>
> Lynn White [22:2]

Studies in the field of natural sciences, including those in engineering, are subject to "disciplinary decadence where universities organise knowledge in narrow terms of rigid disciplines structured into inflexible academic 'tribes' and 'silos' of mono-disciplines" [23:50]. Topics, especially in engineering, are invariably approached from a Western point of view on scientific assessment and ethics [5, 18, 24]. Since the so-called modern age, engineers have grown up in a culture that sanctifies one doing as one likes with one's person and property [25: loc 1596]. Positivist science and technology represent the translation of *thought* into a *tangible presence* [26]. They provide the tools for the direct translation of user demands (thoughts) into applications (technology). However, a critical approach towards the instrumental meaning of technology, for example, the belief that

[58] In a keynote address to the Africomm 2013 conference, in Blantyre, Malawi, titled: *African Engineering and Colonialistic Conditioning*, I presented the following: "Subsequently, when we prioritise Western-centric engineering in the African environment over and above recognition and distribution of local knowledge, we run the risk of strengthening a colonial situation. We then construct a privileged society of engineers that could become more and more labelled as 'settlers', contrasting with those practising an indigenous engineering in the African society [17]. Such privileged society might expect benefits from the West, as they do a *colonial job*" [18:2, italics original]. This line of thought is worked out further in a book chapter that I co-authored with Munyaradzi Mawere on *African Engineering and the Quest for Sustainable Development: Levelling the Ground for all Players* [5].

[59] Up to that moment, my focus was on the Macha Case study and dissemination of its technocratic outcomes. That case study brought forth my dissertation at Nelson Mandela Metropolitan University [10], my book *Placemark* [19] and numerous publications and presentations in Africa and worldwide, all available at http://www.vanstam.net/gertjan-van-stam. Also, in a wider setting, my work comprised interactions in a network of academics that studied the Macha case, like, for instance David Johnson in his dissertation *Re-architecting Internet Access and Wireless Networks for Rural Developing Regions* [20]. That work relied partly on our collaborative work done in Macha. Other works were also affected by Macha's developments, for example, the work of Paolo Brunello [21].

the deployment of technology (such as computers) in itself determines progress[60], in the context of the human intent, capacity, and impact, has been little researched. Such research can be regarded as risky (investigating a tree while allowing for the physical testing of the branch by sitting on might break it). Research on society and technology (in that order) from African viewpoints is particularly lacking.

Most academic research seems caught up in a Western-biased, neo-liberal belief system that assumes the beneficial functioning of markets, individual freedom, and politics [29, 30]. This fuelled Jan Nederveen Pieterse [31] to state that *globalisation* equals *Westernisation*. As an example, look at information and communication technology for development (ICT4D or ICTD), which appears to be immersed in Western-centric worldviews and practices [32]. The sub-Saharan perception of reality, subject to African worldviews and practices, is at odds with a neo-liberal approach [24, 33]. As a result, many mainstream academic publications are of questionable relevance for African academics and practitioners [18, 23, 35, 36].[61] Poignantly, Paul Dourish and Scott Mainwaring [37] show how the discourse on ubiquitous computing *sustains a colonial intellectual tradition*.

Applied research cognisant of African worldviews (such as Afro-centric discourses) is scarce. Not only is there a paucity of data set in African concepts of time and space, whether in positive or reflective formats, there is also a paucity of theory emanated from African settings.[62] Particularly in the natural or applied sciences, studies hardly ever

[60] Already in 1967, Robert Heilbroner [27] noticed the tendency (or, in my observation, the 'addiction') of engineers to revere the technical conquest of nature. As a result, technology is seen as the cause of development by, what Kentaro Toyama calls, 'technoholics' [1: loc 161]. Heilbroner summarised this propensity as follows: "Technological determinism is thus peculiarly a problem of certain historical epoch ... in which the forces of technical change have been unleashed, but when the agencies for the control or guidance of technology are still rudimentary" [27:345]. Especially in the volatile field of ICT, this *control or guidance of technology* continues to be rudimentary, and (as a result?) there appears much ecological and social damage caused by this misplaced faith in technology [1, 24]. Andrew Simms and Victoria Johnson [28] recognise a superlative degree of technology determination, and dub it 'technological saviourism'. They point to a quote from David King, former Chief Scientific Advisor to the UK government, in which he calls, in the context of climate change, for "technological solutions to a technologically driven problem" [28:98].

[61] Questioning the grounding of ICT4D research in Africa, Daouda Ahad *et al.* [34:97] raise three concerns:
(1) the absence of a locally-embedded research agenda, (2) little knowledge on the needs and requirements in the particularities of the African contexts, and (3) little return on experiences because of a lack of documentation.

[62] The paucity of data and theory relates to the negating of African contributions to the global community. In that respect, Mahmood Mamdani [38] cynically noted that Africa can only solicit for the crumbs as *hunters and gatherers* of raw data, as *native informants* who collect and

incorporate thoughts and practices that are common in African communities, especially those in rural areas.[63] Within the body of knowledge available, information from rural Africa is relatively rare and challenging to apply due to issues with its philosophical underpinnings [41–43].

Developing a subset of knowledge on relationships and technology is made more difficult by the challenges involved in obtaining academic inputs grounded in African worldviews. This results in severe challenges to efforts to counter dominant theories, which emerge mostly from a positivist understanding. These challenges affect efforts to deepen knowledge on:

- the content and role of African philosophies and a philosophy of non-Western sciences [44];
- the contribution of indigenous knowledge systems and communal legal systems, where different levels of authority interact with cultural and governance perspectives [10, 45, 46];
- common African understandings of ownership and oral resource allocations [47–49];
- knowledge systems enshrined in oral traditions [50, 51]; and
- the constitution of *knowledge* and its means of translation into local practices, languages, and belief systems [52].

In the past, colonialism introduced overlaying institutions by embedding colonial thought patterns in the systems that ordered public life – many of which are still in place today [42]. As a result, in many countries affected by colonialism, there exists a near total psychological, physical and financial dependency on the state [53].[64] Embedded in this setting, and reflected in funding streams incorporating asymmetric relationships [54], and/or linked to the metrics of (foreign) journal impact [55], research activities are prone to be at odds with the priorities of the disenfranchised communities in former African colonies.

As a result of the institutionalising of colonial thought, many academic definitions are highly problematic, as they embody the values of the people who set them. Almost

provide empirical data for processing in West, and the empowerment of the capitalist elite. Thus, there appears to be a loop that "is in fact a scenario that one could describe as academic imperialism, whereby one school of thought assumes universality to such degree that it overshadows other voices or schools" [24:198].

[63] The terminology of what constitutes something as being *African* frequently pops up as a controversial issue, for example, Sabelo Ndlovu-Gatsheni [39] and others show the hijacking of such terminology for unsavoury discourse. I refer back to the referencing of Thaddeus Metz in the first footnote of this thesis.

[64] A more in-depth treatise on colonialism is provided in Chapter 5.

without exception, contemporary academic definitions appear to be set without consideration of African inputs. Additionally, definitions are mostly expressed in the language(s) of the former colonisers.[65] Examples of problematic definitions include the concept of 'rural areas' and modalities like 'access to services'. In much academic writing, certainly in the field of engineering, these are regularly understood in a manner that fits a Western-centric worldview and experiences.[66] It appears that only a small portion of the literature reports on research involving contemporary relationships between Africans, or between Africans and non-Africans, from an African epistemic positions.[67] Even fewer address perspectives from African epistemologies, set in African philosophies of science.

The issues addressed in this section culminate in a question about the cultural and positional particularity of the discourses and frameworks of much the existing body of knowledge. The indigenous African voices of stakeholders, academics and communities is absent in most of this knowledge. Research rooted in African worldviews is generally not accommodated. Lo and behold, there is a distinct academic frailty when it comes to facilitating research that benefits Africa on African terms.

In Search of Relevant Knowledge

An African epistemology derives from a humanistic, African philosophy [62]. Its metaphors embody the significance of group existence, which is encapsulated in the concept of '*ubuntu*' [63:41] – which I call 'communal love' (see more on this in Chapter 15). *Ubuntu* implies, among other things, a collective personhood and a collective morality. Within this concept, individual humanity is expressed through a person's relationship with others and theirs in turn through recognition of the individual's humanity [62, 63].

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[65] Walter Mignolo [56] described the coming about of a linguistic hierarchy where European languages are considered to be suitable for knowledge/theoretical production and non-European languages are viewed as the sole carriers of folklore, but not of knowledge/theory. Achille Mbembe [57] considers the use of African languages crucial in a decolonialised university, while he lists the former colonial languages as being *among* the contemporary African languages.

[66] For example, Elizabeth Belding *et al.* reported on bandwidth issues in Africa, construed from the Macha Works case, laying the observed "misinterpretation of the concept of network bandwidth" [60:2483] at the feet of *the villagers*. Progress is seen as an emerging of "more sophisticated regulation of the use of the limited Internet capacity" [60:2482]. Here, the words *misinterpretation* and *sophistication* reflect such a Western-centric worldview.

[67] An example of an African academic text avoiding a Western framing is Hester du Plessis' *The Rise and Decline and Rise of China* [61]. The studies in her book address Chinese socio-political developments in a confrontation of Chinese Confucianism and African *ubuntu* values that result in unique contributions to how sub-Saharan African institutions and peoples might understand and appraise themselves in the light of ongoing relations with China.

The notion of an 'African Renaissance'[68] has emerged, expressed through an aspirational discourse developed from seeds sown in the late nineteenth century, with growth spurts throughout the twentieth century, culminating in passionate conversations in South Africa in the 1990s [67]. Paul Zeleza shows how the discourse wades through historical, philosophical and positional challenges, as "it is a long project that entails the renewal of African societies internally, the building of broad-based regional integration, and the promotion of more beneficial participation in the global economy" [68:170].

It is obvious that theory development is a challenge in the convoluted environments in Africa. Prescriptions are plenty, but African frameworks are scarce. Among few others, Lovemore Mbigi [69] and Reuel Khoza [62] pose systematic approaches to these in African practices by African practitioners. However, in Africa, access to their writing is more or less dependent on sheer luck, relying on the right connections, being able to finding a book store and having the text available on a shelf[69], or being able to get a copy from a friend. Writings like these are instrumental in conceptualising the nature of African realities and the art of knowledge creation in Africa, as well as recognising pathways to progress. However, because of the difficulty in gaining structured access to academic writing[70], one wonders what is *out there*.[71]

[68] Stella Nkomo notes that "African Renaissance reflects a growing discourse among some African leaders and academics that Africa must solve its own problems and look within for answers" [64:366]. In this discourse, African leadership is regarded as the key driver of change and through that "these alternative representations often unwittingly preserve, even as they attempt to overcome, the ideological coding of Western (primarily USA) conceptions of leadership and management" [*ibid*.]. About the complexity of the latter, I wrote extensively in previous works [63, 65, 66].

[69] An example is Reuel Khoza's book *Let Africa Lead: African Transformational Leadership for 21st Century Business*, which I stumbled upon in a book store in South Africa. It was expensive, so I had to discuss with the family, but after taking the decision there and then, it was purchased. The book was fascinating reading. I never again found the book on a shelf in a book store, although I tried for years, as many others wanted to read the book too. So, I lent the book out and it was consecutively lent to others, until the trace disappeared and I lost access to the text.

[70] The paywalls of scholarly journals are managed by western-based companies and institutes, like Reed-Elsevier, IEEE, Taylor & Francis, Springer and Wiley-Blackwell. These institutes receive academic works for free and sell them for at least a 30% profit [70]. In practice, this advantages those in well-funded universities in the West. This barrier to access to mostly public-funded research outputs is in flagrant violation of the Universal Declaration of Human Rights, which states that "Everyone has the right to freely participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits." [71: article 27] Computer programmer and open access activist Aaron Swartz declared "Providing scientific articles to those at elite universities in the First World, but not to children in the Global South? It's outrageous and unacceptable." [72: online].

[71] Olúfémi Táíwò [73] recognises the following authors as among the pioneers establishing African philosophy as an academic discipline: Kwasi Wiredu, Paulin Hountondji, Kwame Gyekye, Odera Oruka, and Anthony Appiah and, more recently, Barry Hallen, Olubi Sodipo, and Wole

Studies on social behaviour, society, culture, and technology appear to be limited to observations and explanations of cultural differences, often in settings of culturism.[72] Seminal texts and tools on cultural differences are centred on the work of several Western intercultural experts, such as Geert Hofstede [75], Edward Hall [76], Fons Trompenaars [77], and a few others.[73] In general, their deliberations in the *seminal literature* and the teaching emerging from these do not necessarily touch upon the (contentious) ongoing and current effects of the (orientalistic) conditioning of thought and how this guides behaviour in relationships with those outside the Western framing and collective memory.[74] In such works, the effect of colonialism and other forms of domination seems grossly under-represented. Two mind-boggling questions remain: For whom are these texts written?[75] And, who are these texts meant to benefit? Relevant knowledge and applicable theories are difficult to find, or simply might not be readily available. As academic permission for African thoughts is relatively recent [78], there might not yet be an accessible body of literature.

Soyinka. I was only able to access a few of them, mostly by ordering their books over the Internet through Amazon – after I found a way to get access to a credit card (which is difficult if not impossible in many non-western countries) – and having them shipped to friends in the USA or Europe. I would then bring them to Africa during intercontinental travels.

[72] In a previous work I co-authored with Mawere, I explained "Verhaeghe [74] recognises a cultural turn, where cultural explanations are replacing socio-economic explanations. Within this cultural turn, topics shift to social constructions like identities, religions, values and attitudes. He regards the replacements of Keynes theories by neoliberalism to be an example of this cultural turn. He problematizes the underlying notion of *cultural essentialism*, as he regards culture as a social construction. Verhaeghe notes that culturism is not neutral, it is a political-ideological activity" [24:202].

[73] In the work *Maslow's Theory of Human Motivation and its Deep Roots in Individualism: Interrogating Maslow's Applicability in Africa*, my co-authors and I state that a "list of divergent emphasis in traditions ... can be of any length in our diversified world, and will change over time. These kinds of lists basically show contemporary differences in cultural codings. For an explanation of underlying reasons, the enshrined norms and values should ideally be informed by indigenous sources. Such input is greatly needed, especially in assessment of the underlying structures, and their effects in the field of Human Motivation" [65:64].

[74] We concluded that "the theory of Maslow is not applicable to many settings in Africa, in the past or even today. The claim for universality of the model proposed by Maslow is therefore questioned and its universal application is discredited." [65:68] This conclusion is most probably valid for much work in psychology.

[75] In my observation, outputs of academic studies in Africa address case studies that span ever-shorter periods of engagement. Also, it seems that western authors are mainly focused on teaching western students within a western context, in realities that are very different from those found in mainstream Africa. I regard the suitability of many (most?) academics works that are considered *seminal* to be questionable (and certainly not proven) in guiding African researchers in African contexts.

Growth of Comprehension through Immersion

This research is an extension of the dialogue taking place in my ongoing participatory activities. It is another community deposit with reflections on interactions through the lenses of various disciplines, building upon the collective experiences of my life, all and sundry. Each community deposit – whether in the form of papers, book chapters, or presentations (both oral and textual) – builds upon the preceding ones, framed by a transdisciplinary approach to realities. I continually expand the dialogue to interact with my experiences, incorporating the responses to my deductions from various communities in an ongoing reflective dialogue. Without an understanding of this intricate journey and the continuous engagement with community inputs modulating this journey[76], it is difficult to assess the validity of my critique of contemporary theories.[77] In true reflective fashion, I do not align with a positivistic or scientism claim of replicability, reliability, or representativeness. This work is embedded in relationships and is contingent on being involved in the community.[78]

I aim to come to grips with the totality of social and daily interactions within a lived and constantly changing empirical reality. As with the understanding of culture, my understanding of these interactions remains elusive, as it is always *becoming*. Therefore, community deposits, of which this document is one of many, augment the body of knowledge from the evidence emerging from a reflexive science. I hope to contribute by providing snapshots of insights into reality, scrutinising the empirical evidence through an ever-expanding arsenal of research tools and participants, and for ever-expanding audiences.

My previous academic works give an indication of the path I have travelled; from the outset, I have been a student of natural sciences (particularly, engineering). However, in studying technologies, especially outside of the contexts in which they are conceptualised, aberrant insights necessitated me shifting focus to study aspects of

[76] An important community input is the explicit request to research, with permission to publish and provide continuous reports and check-ups on progress, in person, through SMS, Skype, WhatsApp or Facebook messenger by members of the Macha community and others.

[77] For instance, I worked collaboratively on texts that debunk Abraham Maslow's theory on what humans want [64] that exposed and raved against methodology imperialism [24], and that showed an African engineering that does not depend on, or ask for, Western acknowledgement [5]. Further, I inserted slides on the *exceptional wealth of Africa* and *the strength of community* in a number of presentations. Revealing the link between the broader context and exposing the hidden contextual theories or master narratives is what Michael Burawoy calls a 'vocation' [79:xiv].

[78] Michael Burawoy [79] agitates against the science-defining esteem of the *4 R's* of analytic fieldwork – representativeness, reactivity, reliability and replicability [79:127–128] – which he derived from Jack Katz [80] and which he notes are regarded as the gold standard for science.

societies, cultures, and values. Each of my writings can be seen as a snapshot – the *freezing of situational knowledge* – along this journey of exploration. Positioned as it is in the global realm, my work necessarily interacts in the national, regional and worldwide contexts. These works rely on the empirical core containing the total of my experiences and observations, augmented by a transdisciplinary approach to contributions from academics and practitioners. The interim result is a contribution to the academic body of knowledge containing a multitude of papers, presentations and addresses.[79]

What I Desire to Understand

This research relies upon long-term and ongoing interactions and observations in the lived environment in Southern Africa. From a core of relationships in Murambinda, Zimbabwe and Macha, Zambia, these interactions grew in size and geographical span further afield. The disciplinary fields of enquiry expanded from the natural sciences in the built environment – observing detailed technical interventions – to the social sciences reflecting on meaning, purpose, and the social significance of local interactions in relation to the bigger picture of both a globalising and shrinking world. While operating as an engineer, focused on 'solving problems', it became clear that there are many perspectives on *what* the problem entails and *how* the problem could be approached. Facts or data initially offered for assessment presented as objective and giving a clear indication of 'the problem' became less objective (or even less relevant) when approached from different points of view (such as the local view point of view). As an engineer concerned with "the development, acquisition and application of technical, scientific and mathematical knowledge about the understanding, design, development, invention, innovation and use of materials, machines, structures, systems and processes for specific purposes" [81:24], it dawned on me that, although the engineering views on (and definition of) problems and solutions seemed to make academic sense, in my practical experience they make no sense. The understanding of problems and solutions – which are the input for engineering – appeared contingent upon human inter-relations in a myriad of social interactions, which are mostly absent, or unqualified, in the literature on natural sciences.[80]

Pressing questions emerged from what I saw as unaligned understandings of the basis on which 'the problem' was being defined. There appeared to be important rifts in the views of the meaning and significance of the same event. Initial deductions from the viewpoint of a Western-trained engineer and from members of the local community were

[79] All texts and presentations are available click-and-read at http://www.vanstam.net/gertjan-van-stam.

[80] This observation became public in IEEE's *Try Engineering 'Careers with Impact': Van Stam* [82], available at https://ieeetv.ieee.org/careers/tryengineering-careers-with-impact-van-stam.

disconcertingly far apart [24, 83]. As engineering guidance is mostly presented in a singular and monolithic format, almost solely imported into the local community from outside sources, there was no guidance as to how to interpret, mediate and integrate this diversity of views. The inconsistencies and seemingly incommensurate views come to the fore when engineering and technological exploits span geographical areas with two or more particular worldviews. Solutions developed according to dominant/foreign frameworks appeared to have both an empowering and disempowering effect on communities, which was not catered for in the outcome predictions of those frameworks. I observed how interventions thus implemented affected local power balances with real and often disturbing effects on relationships. However, it appeared that these outside viewpoints continue to be regarded as 'correct' and outcome irregularities are reprehensibly put at the feet of the local communities. Consecutive implementations, performed along the lines set out by these foreign frameworks, resulted in conflicts *between people* in the local communities. These observations, and my reflections on them, I regarded as primary evidence, which called into question most of the extant technical guidance and the implicit value judgments involved. It appeared strange that the views of local people seemed to be deemed less informed, less academic and, therefore, less applicable, especially when one starts to understand the benevolent intentions of most of the stakeholders involved. It appeared I had stumbled upon an enshrined, unmediated, and gross social injustice.

The primary evidence that I gathered from community engagement, catalysed by the introduction of ICTs, gave rise to the idea that an ongoing form of colonialism continues to influence contemporary relationships. Subsequently, the present inquiry was formulated, with the guiding questions that set off this research. The objective of this venture is to try and unearth what appears to be implicitly understood in an African environments, with special focus on people in rural areas. I endeavour to bring to the surface what might have been hidden from sight before – and to develop the theoretical concepts to analyse how this understanding relates to the outside world.

Framing the Research Questions

The research question that guided the start of this work, as per my Macha Works' approved research proposal to Tilburg University of 10 September 2014, was:

> Within the African, indigenous context, and the setting of Macha Works, how do narratives of engineering practitioners – those that shape technology – construe relationships with foreigners, how do they reference colonialism, and what happens at the node of interaction of these narratives that would inform a narrative of the future?

Set within the parameters of this broad research question, a set of sub-research questions were included in the research proposal. These sub-research questions, were:

- How do actors narrate their contemporary situation with respect to colonialism?
- What narratives do actors use about the interactions in relationships possibly influenced by colonialism?
- What idioms are employed, and how do these idioms interact with predominantly western modernist discourse?
- What happens on the nodes where different narratives meet?
- What contemporary meaning do actors attribute to interactions with foreigners, in both the physical and spiritual realms?
- How do actors aim to deal with their current and future existence in a connected world, taking coloniality into account?

In true reflexive fashion, these research questions acted merely as a starting point from where I approached the empirical reality in a social-scientific manner. The questions provide a filter that narrows the broad fields of inquiry, charts the experiential and scientific fields of enquiry, and points towards the relevant theoretical areas, grids and approaches confined by existing theories. Seeing the research question as a 'guiding frame' – an unrestrictive starting point and strategic intention – allows for deviation 'along the way'. This approach is aligned with the long-term focus of life in local communities in Southern Africa, which allows space for activities in the here-and-now to digress smoothly without losing sight of the guiding long-term principles. The questions provide for a designation of the target of enquiry to cater for the necessary, constructivist *theory-laden perception*. Such perception is instrumental in distinguishing initial scientific meanings and guides the search for potentially-relevant extant theory [44].

An Ethnographic Exploration

My work represents a journey of ethnographic exploration in sub-Saharan contexts. The interactions and observations that constituted the 'research' took place in the 'lived life' and included my daily interactions with communities and society actors in Zambia, Zimbabwe, and other areas in sub-Saharan Africa.

Existing theories provided the initial lenses through which a basis for meaning was revealed. These theories set the academic sensitivity required to be able to observe and interact with the empirical world and, when necessary, develop new premises. Continuous interactions within African societies and further afield provide for an

incessant stream of inputs that are instantly analysed in a critical interaction with existing theories and emerging new theories in an oral, embodied, and continuous manner [51]. This process includes the continuous monitoring of relationships with local, national, regional and inter-continental practitioners, academics and authorities, to scrutinise emerging insights in an ongoing, ethical and locally-adept flow.

I initially used a critical ethnographic approach to cater for scientific sensitivity during my master's research at the Nelson Mandela Metropolitan University (NMMU). Sensitised by Soyini Madison's [87] writings, I used critical ethnography to forge a strategy to make ICT accessible in rural Zambia [10]. However, in this work, I added a more exploratory approach allowing for multiple inputs from an ever-growing store of sources. This was made feasible by the use of ICTs and ICT-based facilities and applications that allow for the continuous and non-abated flow of communications. Personal interactions were augmented by e-mail, telephone, Skype, WhatsApp, and any other communications platform or application available and were utilised to maintain a relative, fluid, highly flexible, 24/7, 365-days-a-year, networked research environment aligned with the principles of *living-the-life.*[81] The use of ICTs allows for the harvesting of any opportunity to interact with communities, peers, supervisors, and other agents, without the need to set time commitments or for monetary resources.

Of course, this research is particularly confined to my life experiences and geographical reach, as I primarily use my personal interactions about technologies in general and ICTs in particular as an entry point for community engagement. A sincere, sensual-rational presence is crucial to align with the phonocentricity[82] of many African contexts [51]. 'Phonocentricity' relates to interactions, particularly meaningful ones, with the embodied presence of those conversing.[83] Therefore, the exploration focuses on the empirical evidence gathered since March 2000, the time from when my family and I started living in (rural) Africa without interruption.

[81] In the paper: *Modeling and Practise of Integral Development in Rural Zambia: Case Macha* [86], we positioned *living-the-life* as a foundational part of gaining acceptance and continuous engagement within the local community. Living-the-life involves: valuing relationships; showing commitment; actions in the here-and-now; exercising paucity; suffering and sacrifice; recognising (local) authority; and the integration of beliefs and practices.

[82] Phonocentrism takes the logos or sounded word as primary source in the metaphysics of presence [88].

[83] A physical presence is particularly fruitful to assess *truth*. As Cornel du Toit observes "Premodern people have an uncanny knack to see when someone is cheating [89:163–167]. This is because facial expression, tone of voice and body language verify the speaker's sincerity. It assumes the integrity of the human person, in which case inner and outer worlds are not differentiated. Mind and body are one and what occupies the mind is displayed by the body in the process of communication" [90:202].

As to the assurance of certainty, the granulation of the empirical evidence is restricted by my geographic exposure and represents a 'convenience sample'. My exposure is particularly wide as I have been privileged to travel extensively and from a home in rural areas, visit numerous rural communities in Zambia[84] and Zimbabwe[85], as well as urban areas in Africa[86], Europe and North America[87].

My ethnographic exploration focuses on the observation of life events taking place in a complex network of relationships involving communities, governments, donors, local talents, and other stakeholders. The common dominator in this network is the involvement in, or relevance for, sub-Saharan Africa.

This research reviews narratives, which are often prompted by discussions on the introduction or growth of ICTs in the form of the Internet, community radio, and other technologies. However, the study does not limit itself to such narratives. It allows for any narrative and, therefore, also gathers those from other settings, like construction, transport and education (relative to culture), the review of institutional activities, and general observations of, for instance, ecosystems.[88]

The empirical inquiry focused on:

- narratives of communal and individual self-assessments;
- the relationships of the community, individuals, and institutions in the lived environment;

[84] My family and I lived in Zambia full-time from 2003 until the end of 2012 in the remote community of Macha. Macha Works is involved with many other areas in Zambia. Its interactions focus on Mukinge, Kalene, Mpika, Chilonga, and other areas. However, fact-finding visits and support trips took place all over Zambia, to Zimbabwe, and South Africa. We used ground and air transport from the Macha base hundreds of times.

[85] Exposure in Zimbabwe focused on Murambinda, where our family lived full-time from 2000 till 2003. From 2013 our family resided in Harare and from 2015 in Masvingo Rural. Since 2015, I have travelled extensively in Masvingo Province.

[86] My international travels covered large areas of Lesotho, Malawi, Mozambique, South Africa and Swaziland, among other countries. Focused study visits took place to Botswana, Ethiopia, Kenya, Namibia, Rwanda, and Tanzania.

[87] Frequent opportunities to visit the West were facilitated by my role as part of IEEE Board of Director Ad Hoc Committees from 2012 up to and including 2015. Invitations to present at various universities took me to many locations in Europe and the United States of America.

[88] A full and detailed explanation of the process of information gathering is given in my paper: *Information and Knowledge Transfer in the Rural Community of Macha, Zambia* [51], the basis of Chapter 3. Among other things, the paper details advantages (speed, immediacy, assurance of comprehension), aspects of process (for example, interaction with a specific stakeholder necessitates instant follow up with all stakeholders), the disadvantages of textuality, and the faculty of data processing through meetings and discussions.

- negotiated practices, their nature and content; and
- narratives in situations of domination, interaction with foreigners, and in relation to colonisers in the past and present.

Through this empirical inquiry and the literature review, this research aims to expand the knowledge base on local religion, moral values, ethical concepts, themes, tactics, guidelines and principles in order to gain insight into the research questions.

A Post-Foundational Research Approach

In seeking alignment with, and space for, multiple epistemologies, I engage with the empirical world, cognisant of a multi-contextual world. In this, I aim for a *virtue epistemology*[89] where understanding and the collection of knowledge is affected by *attitude*. It is about embodied morality, beliefs, and values and the interactions that allows for a multiplicity of knowledge systems. Explicitly, I do not subject the human environment to a techno-scientific (or positivistic) framing.[90]

In this work, I endeavour to recognise multiple knowledge systems by applying a transdisciplinarity that involves introspective self-assessment in various contexts and uses retrospection to recognise multiple forms of rationality through time. I stop exploring and reflecting when it becomes clear that no further anthropocentric value is to be gained. Further, I incorporate scientific integrity by the explicit exposure of – and confrontation with – (potential) power strategies from one particular epistemology over other epistemologies. For example, I assess issues of local representation of schools of thought in relation to other societal stakeholders, allowing for the co-existence of paradoxical knowledge. This assessment aims to expose various knowledge systems and allows for the study of their existing or potential integration in local contexts. In this manner, I hope to contribute to post-foundationalism/post-epistemology[91] and post-empirical inclusiveness and to expose such reflections on human nature.

[89] 'Virtue epistemology' is a philosophical approach to epistemology that values positive character traits such as understanding and reasonableness in the pursuit of knowledge, as opposed to epistemic vices such as close-mindedness, dogmatism, or other character traits that could impede epistemic cognition. Virtue epistemology seeks to share knowledge with others with a conscious and intellectual carefulness [91, 92].

[90] This position is aligned with Bent Flyvbjerg's [93] passionate call to avoid social sciences that emulate natural sciences. This approach also tries to avoid being locked into scientism [35, 94, 95].

[91] Cornel du Toit regards post-foundationalism and post-epistemology to stress "that all knowledge systems, for all their professions of neutrality and objectivity, are merely reflections of the dimensions of human nature" [96:163], which, in the design of this research, I translate into an explanation of how choices of methods and activities are subject to the embodied, real-time involvement of people and how these natural, human interactions *lead* the research activities.

The overall strategy for this research is highly flexible. It allows for the various networks of collaboration (community members, peers, academics) to work as creatively as possible. Various methods are used to collect and analyse the empirical evidence in an effort to fuel exploration, participatory engagement, and the retrospective appraisal of the empirical world in view of emerging insights and the introspective and intuitive assessment of the research experiences, especially in view of the objective components of identities.[92]

Design of community participation

This research relies on my detailed engagement in Macha, Zambia, and my more general, wider engagement in African and global societies. It necessitated a conscious effort to engage in participatory encounters so as to gain information (empirical inputs) on the various epistemic, ethical, and moral realities by recognising what Emmanuel Chukwudi Eze calls a "reason in experience or a vernacular [or 'indigenous', my words] rationality" [100:19]. To engender such participatory engagement, I used a diverse mix of methods in the actual research processes. The choice of method (for example, participatory action research and learning) depends on convenience and emerging opportunities based on *who happens to be present*.[93] Of course, all this is constrained by whether or not money is involved[94] and a judgement of the likelihood that outcomes will be helpful. In their diversity, these methods allow for various narratives to come to the surface and for the recognition and indication of various perspectives in the empirical world. In particular,

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This approach contrasts with a pre-loaded prescriptive research design that lists methods to be used, which in turn guide the arranging of conducive circumstances (involving people and resources) presumably managed by the researcher to make the research 'happen'. I regard the latter research approach as *manipulative* when exercised in an African environment, and unaligned with the principles of community engagement [97].

[92] Samuel Huntington [98] mentioned religion, language, customs and institutions as such objective components, which he saw as crucial in the emerging clash of civilisations, as he perceives its coming. South African philosopher Bert Olivier [99] considers Huntington's views as vindicated by current events, like the terrorist attacks in Paris, France.

[93] The guiding consideration of *who is present* is aligned with Jim Collins' [101] research findings. Collins suggests that successful enterprises first focus on 'who is present' and their capabilities in defining 'what is going to happen'. Therefore, by design, first I assess the circumstances and the people present and view those present as co-researchers. Only after such assessment, I address the 'how' and, subsequently, the 'what' (the method, in this case). This represents a flexible and conventional fit of methodology to the circumstances and people.

[94] I do not solicit funding for my research. Therefore, in practice, this means my research policy is: when it costs money and nobody offers funding, I generally refrain from doing it. Convenience, therefore, means participating in activities that are already ongoing. Examples are utilising transport from one community to another and backing or pitching into existing research programmes that are part of (funded) research programmes. Thus, by design, I hop on and find myself *where the action is* when I am welcome and when there is extra space, serendipitously left for my involvement.

participatory methods facilitate the process of successful gathering empirical evidence in the communal, African environments, especially in rural areas. However, in the assessment of feats in engineering, a mix of positivist and reflexive designs can be helpful. Thus, the research design incorporates continuous cycles of *planning*, *acting*, *observing*, and *reflecting*. Feedback loops are augmented by the continuous interaction of various communities of practice (for example, in social sciences, in community informatics, in various academic and professional communities, and so on.) and by humbly participating in peer-interactions, mentoring emerging collaborators, and continuously producing community deposits in many varied formats[95], catering for communications in various meme-formats.[96]

In Africa, community participation involves long-term involvement. This research harvests the fruits of my full time engagement in Macha and abroad since 2003.[97] My academic sensitivity grew from years of dedicated academic scrutiny, which expanded during various academic pursuits. My first work was socio-technical and, upon further academic growth, it expanded into retrospective and, subsequently, introspective engagements with the empirical evidence. Three distinct engagement periods can be recognised:

- **March 2003–April 2007:** Entry into and full-time engagement in Macha by invitation of the Churches Health Association of Zambia as a Technical Director of the Malaria Institute at Macha (MIAM). During this engagement, I focused on learning and experimenting during daily interactions with the community, organisations and stakeholders. This engagement morphed into the shared idea to set up a dedicated community activities organisation, culminating in the start of LinkNet, a multi-purpose cooperative society, by the community.
- **May 2007–March 2010:** Practical and daily participation in Macha and other rural communities in Zambia and beyond, including developing practitioners' models in

[95] The format depends on the particular constraint encountered. David Johnson *et al.* [4] show the extant constraints to be environmental – subdivided into geographical, infrastructural, political and legal, and deterministic constraints – both economic (including skill constraints) and cultural.

[96] I regard memes according to the frames of the Spiral Dynamics colour schemes proposed by Don Beck and Christopher Cowen [102]. Beck and Cowen propose a set of subsequent values-attracting meta-memes, each fluidly linked in with situational factors, allowing for a structural analysis of stages of development. In 2009, Jasper Bets studied my embodied interactions and use of memes-theory and reported on its design and function in detail in his master's thesis *Integral International Development Case Study: Macha, Zambia* [103].

[97] In practice, my first encounter with Macha was a short visit in 1994. Our family stayed in contact and were invited to participate in the development of (health) research at Macha. Before 'entering the field' I invested one year of study (the year 2002) on ICT engineering aspects for Macha.

community activities in health management, managing Internet services, developing power generation solutions, preserving African Cultures, providing flying services, developing innovative school education infrastructure and conducting research, developing a Community Centre, and engaging in agricultural development, leadership development and other activities.

- **April 2010–2016:** Reflective study and theory development, initially as a full time Research Fellow at Macha Works and then as a Research Fellow at the Scientific and Industrial Research and Development Centre of Zimbabwe (since 2013). During this period I resided in Macha, Zambia (up to and including 2012), Harare, Zimbabwe (since 2013) and Masvingo (since 2015). My formal, academic involvement was interacting with universities in Zambia, Zimbabwe and other countries, and as an external student pursuing a master's degree (August 2012–April 2014) at the invitation and under the daily supervision of Professor Darelle Van Greunen at the Nelson Mandela Metropolitan University in Port Elizabeth, South Africa and then as an external PhD student (September 2014–2017) at the invitation of Professor Gerard Van Oortmerssen and under the daily supervision of Professor Mirjam Van Reisen and Professor Mawere at the Tilburg University and Great Zimbabwe University respectively. I was grateful for the interactions with faculty and students at the Great Zimbabwe University in Zimbabwe.

In this research, I apply a polychronic cycling of exploration, understanding and intervention, aligned with a contextual, corkscrew understanding of time in which research, exploration, understanding, and intervention cycles are involved in an active process that observes the social and instrumental waves created by interventions affecting the community. This design harvests and analyses pertinent observations, collected through multiple methods and in various formats. In this work, I particularly search for narratives that explain particular understandings of the contextual meaning of both the intervention and its non-tangible and tangible outcomes. As progress in rural areas goes in leaps and bounds, which are highly dependent on polychronic timings, my position is mainly reactive; I am positioned as a learner — like an adolescent — who would like to foster a deeper understanding, while endeavouring to 'grow up' in terms of understanding the speech symbols, the legal codes, the morals and, most importantly, the values of the community being studied. Through participation, the concepts and particularisation of sub-understandings that inform theory building are gained, fed back and put to the test in the daily interactions of the lived environment.

In my book chapter: *Ubuntu, Peace, and Women: Without a Mother, there is no Home*, I framed the process of community interaction as follows:

> *In the lived environment, the author positions himself as a curious observer. This involves an attitude of sympathy for any situation, searching for what it feels like for the local actor to behave the way he/she does. This curiosity is exercised with caution, so as to not fall into the trap of contempt, where the rural activities could be regarded as less developed, or – the opposite – practice would be viewed in a romantic reverence.*
>
> *Phenomenology informs the description and interpretation of the observation. Such an approach does not seek to analyse and measure objective attributes of a phenomenon, but tries to unearth the underlying subjectivity. All aspects of communications inform the research process: for instance, the record of evanescent sound and all non-verbal communication including season, place, sun position, mental state of the people present, the seating arrangement, and somatic information such as gestures and facial expressions [50]. The researcher assumes a critical attitude while assessing field observations, involving – as far as possible – an intentional attitude of impartiality. Inductions involve a holistic and trans-disciplinary weighing of all aspects of realities observed. Derived outcomes add to the knowledge base as a progressing understanding of how realities are understood within the environment.* [63:40]

The community interaction loops are instrumental in the process of building an adaptive understanding of the contextual meaning of events in a community. In practice, this involves focused and pragmatic interactions with community members while being sensitive to how the evolving understanding aligns with emerging theories. The experiential evidence from these interactions strengthens or modifies the emerging theories, while I endeavour to gather both detailed experience and 'helicopter views' as I go along. Thus, the research design integrates a conscious and cycled reflexivity of myself about the *in-situ* experience. Furthermore, the interactions are an integral part of the process of leaving community deposits, as communication in Africa is inherently a reciprocal process of giving and receiving (as will be shown).

Retro- and introspective research and dissemination

In the process of sense-making, I visit the empirical aspects of the lived-life, in all its facets, both retrospectively and introspectively. Here, I examine how to make sense of empirical phenomena through conceptualisation. This conceptualisation, as we will see later, involves assessment of the paradigmatic (re-)framing. After such (re-)framing, retrospective revisits of observed behaviour and encounters can yield new insights about the ontological foundations of my observations in light of paradigmatic variations.

In the same way, introspection[98] reacts with all other aspects of the research. Through reflexive introspection, I revisit both my participatory actions, assessing the many roles I have played and the reactions my presence and communications have evoked. Also, introspection combined with retrospection allows for a reassessment of the insights I gained from the empirical evidence, especially in situations and encounters where I was an actor. In positive introspection, I ruminate on the meaning of what I thought I knew and observed, while in negative introspection I reflect on what I did not know [105]. From this process – especially when embarking on a reflexive ethical analysis of my experiences in connection with theory development – I bring another means of change to the fore.[99] Thus, introspection contributes to the consolidation and embodiment of knowledge and meaning as I reflect upon my thoughts and behaviour – past, present, and future.

From my position as a participant in my own research, I engage stakeholders in cycles of mutual retrospection and introspection, checking if the consolidated outcomes make sense to these community representatives. In this process, also in an effort to reciprocate, I aim for the feedback to result in embodied knowledge in the community.

Methodology and Practice: The Extended Case Method

> *We don't start with data, we start with theory. Without theory we are blind, we cannot see the world*. Michael Burawoy [79:13]

Due to efforts to align my work with community practice, this research studies both phenomena and science in the quest for contextually-appropriate research methodologies. One can assume that the same challenges with availability and access to literature, and with approaching the empirical foundations from an African perspective, exist in relation to the availability of methodologies embedded in African perspectives.[100]

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[98] As one of the founding parents of 'Grounded Theory' (a positivistic equivalent of the extended case method), Christina Goulding commented on the significance of introspection by stating that "the researcher's introspection and the philosophical basis of a given methodology should form the starting-point for enquiry" [104:869].

[99] Reflexivity refers to a circular relationship between cause and effect. It is linked to ethnographic and anthropologic approaches that allow for self-observation, contemplation, and imagination – and, therefore, creation. Tim Ingold describes reflexivity as action-oriented consciousness that *reviews* and *interprets* – and *learns*, I would add – from experience. Reflexivity is important to avoid 'decontextualization' (where inputs are severed from their historical context) and 'disconnection' (where inputs like theory and observations are regarded as independent entities), bringing all and sundry into an internal dialogue [106].

[100] In appreciation of this challenge, I (together with Mawere) wrote the book chapter: *Paradigm Clash, Imperial Methodological Epistemologies and Development in Africa: Observations*

It took me many years and numerous frustrated discussions to come to relative terms with the conflict between a dominant (Western) epistemic approach and the resulting mismatch and inability to communicate meaning in the context of an African community. I did so through the use of a critical ethnography to approach an engineering challenge. The dominance of the 'foreign perception', which is even presented in African settings as 'scientific truth', showed me that the academic perspective implicitly involves a positionality. I recognised that the foreign positionality carries a tone of imposition and coercion, as it involves a perceived (white, male) voice from the West. Further, it appears that academia has commoditised the community experience through cultural descriptions.

As part of this journey, I embarked on a critical review of methodologies. In the field of engineering, I found some breathing space in the interdisciplinary fields of ICT4D and community informatics.[101] Even in the social sciences I remain uneasy about the value of popular methodologies. Their harvesting, processing, and the subsequent formulation of *outcomes and findings* seem to prioritise a Western comprehension and consumption.

I was about to give up hope of finding respite, when I stumbled upon the writings of Michael Burawoy.[102] In his work, I recognised a similar struggle. His so-called 'extended

from Rural Zimbabwe and Zambia [24], the basis of Chapter 7. In that book chapter, my co-author and I claim that "the choice of methodology, in the case of Africa, is often determined and set by researchers from the West exercising their privileged agency, based upon their political power to have their choice imposed and embraced 'as is'" [24:193]. In the same text, we "argue that it is only through epistemic pluralism – methodological pluralism/diversity – that world societies could possibly achieve symmetrical relationships in the areas of knowledge production and socio-economic development" [24:195]. Lastly, we "argue that the colonial set-up of the scientific systems, like journals and academic institutes, has abused methodologies, making them serve as tools of appropriation of information for foreign benefit, leaving the local communities of Africa objectified and exploited even many years after the end of 'formal' colonialism on the continent. In line with this, we further argue that the implicit decontextualization and de-humanisation of indigenous knowledge and/or local methodologies and epistemologies is a moral offence to most African environments. Sadly, non-alignment with the imperial hegemony and utilisation of prescribed methodologies not only short-change the people of Africa but severely impair one's access to resources for research in Africa." [24:200].

[101] In late 2015, a team of researchers in community informatics (CI) rose to the challenge, recognising that "the researcher's belief system about how knowledge is created and justified, or the researcher's epistemology, therefore plays a significant role in decisions surrounding both the theory and methods used in CI" [107: online] and created a special issue of the CI-Journal "to both disentangle and organize the use of existing methods in CI and to explore innovative new approaches used by researchers and practitioners in their work with communities" [107: online]. Sadly, there was no input from Africa. However, in many disciplines, including ICT4D, a critical review as to the positional challenges of methodologies has yet to take place.

[102] Michael Burawoy did his master's in social anthropology at the University of Zambia (1970–1972) based on Zambianisation in the mining industry since 1968. Perhaps this contextual link

case method' and my methodological contributions as noted in, for instance, *A Strategy to Make ICT Accessible in Rural Zambia: A Case Study of Macha* [10], although developed separately, are remarkably similar. Burawoy is a Zambian-educated scholar, brought up in the Manchester School of social anthropology, who is conscious of the inequalities and inter-personal tensions. It is with much trepidation that he proposes a method of reflexive science[103] that allows observations to live in their 'extralocal' and historical context. While proposing this method, he writes: "I have been writing this paper for twenty years. Earlier versions are barely recognizable due to dialogue, discussion in many venues" [110:4], and in the same paragraph "... my first sociology teacher who, as an anthropologist, embodied the extended case method, although he'd recoil in horror at the formalization to which I have subjected it". I feel the same apprehension about writing this document, as, due to the formalisation process, writing can only be regarded as a 'picture taken' of the status of the work and should not be seen as the final work. In our complex and ever-changing world, there is always more to discover.

The extended case method [79, 110] guides a structuring of reflective insights gained from interventions in the time and space continuum of a researcher and participants in the lived realm. This time and space continuum involves views on history, the here-and-now and, I add, interacts with a meaning projected into the future.[104] The reflective insights generate 'situational knowledge' in discursive formats (for example, narratives) and non-discursive formats (for example, tacit knowledge [112][105]).

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with Zambia allowed for resonance between his writings and my experience and the academic need to set research in a contextually-sound methodology.

[103] In his study of the nature of truth, power, and intellectuals in the university setting, Bert Olivier [108:24] calls for more reflectivity as a 'circulating method' (citing [109:281–296]) to counter the normalised power-effect of panoptical discourses within universities, as part of a struggle to reveal and undermine what is most invisible and insidious in prevailing practices, and to counter the current colonisation of universities by the imperatives of a neo-liberal or capitalistic approach. Such a circularity is quite apparent in my research approach, as explained in previous paragraphs.

[104] The adding of 'meaning projected into the future' is an important deduction from the reflexive approach. This addition is appropriate as the community is locally known to consist of members in: (1) the past, in the form of ancestors, (2) the present, in the form of the living, and (3) the future, in the form of the children, born or still unborn [111]. An example of the need for inclusion is the projected agency of 'white people being regarded to sit next to God', as explained to me by a community member in Macha in 2012. This envisioned agency to influence the deity does affect relationships in the present.

[105] The works of the philosophising chemist Michael Polanyi are a fruitful and deep source of understanding of this "unexplicated, unacknowledged knowledge" [79:41]. It is my belief that that knowledge is only knowable through the lens of 'faith' – an observation I will undergird in the various chapters and conclusion in Part III of this thesis - with which Polanyi seemed to concur when he wrote: "one must recognize belief as the source of all knowledge" [113].

Of course, the initial voids caused by both unsuitable methodology and inapplicable theory were apparent in Macha from day one (in 2003). Therefore, after a few years in the community, in a flux of writings, I tried to fill these gaps. In retrospect, I recognise my first publication exercises as attempts to create 'theories of intervention'. From an assessment in Macha how to engender access to ICTs, in previous work [10], I developed a three-step methodology that grounds holistic progress through:

- Step 1: Community engagement;
- Step 2: Workforce development;
- Step 3: Thought leadership.

In the subsections that follow I explain my methodology and its alignment with Burawoy's extended case method.

Community engagement (intervention)

The first (operational) research step, 'community engagement' aligns with Burawoy's first step, which he labelled 'intervention' [79:39]. Here, the observer is also a participant (or the participant becomes an academic observer, as in my case). In the practice of community engagement, one must be sensitive to local contextual frameworks and understandings, for instance, regarding time and space, affecting both the practice of human interaction and the assessment of realities [97].

Burawoy explains that, during this phase, the researcher must be attentive to mediate the possible effects of *domination*, being both participant and researcher.

Workforce development (process and structuration)

Burawoy labelled his second *contextual step* 'process'. During this phase, observations are reflected upon in time and space, mediating the silencing resulting from decontextualization (in time and place). This concurs with both periods of formulation of thought, from retrospection through to introspection, inclusive of what I call 'introspective retrospection'. Burawoy's idea aligns with my claim that my contributions to the body of knowledge are serious because of the longitudinal nature of my underlying research.[106]

[106] Some examples: "Knowledge incorporates the longitudinal understanding of the African community perspective as well as a sensitivity towards African worldviews" [116:2]; "A string of multi-disciplinary papers involving quantitative and qualitative reports corroborate evidence of longitudinal research depicting the progress of this rural community since 2004" [3: online]; and "The lack of long term, longitudinal research on the use of technologies in disenfranchised areas particularly affects the knowledge base" in [35: online].

In the third phase of the extended case method, Burawoy regards the extension of a process into a force, brought about through 'structuration'. Here, he warns, the research must fight the powers of objectification.

These two steps (process and structuration) align and combine under the banner of 'workforce development'. Examples of how they combine in 'workforce development' showing sensitivity to context and structure, are contained in my texts on previous outcomes of such research sequencing and inclination include recognition of processes and the power of e-learning, the potential influence of massive open online courses (MOOC) [117], and novel opportunities for improvisation and innovation towards 'universities of the future' [118, 119].

Thought leadership (reconstruction)

Lastly, Burawoy in his extended case method describes a fourth phase: 'reconstruction'. Here, the scientist extends the work into an extension of theory by contributing to the body of knowledge. The chapters contained in Part 3 of this document contain such a reconstruction into theory, taking into account the potential pitfall, which Burawoy labels 'normalisation'.

This reconstruction phase aligns with the method and practice known as 'thought leadership'. In this process, I recognise a holistic progression through five phases [66], namely:

- careful positioning, attaining explicit rights to influence others;
- expressed permission, grounded in lasting relationships;
- tangible production, with sustainable achievements through commendable actions;
- capacity development, building abilities in individuals and organisations; and
- honourable representation, through recognition of wholesome and embodied knowledge.

Honourable representation can be recognised in my recent works addressing the difficulties of extant systems and theory. For example, I co-authored *Maslow's Theory of Human Motivation and its Deep Roots in Individualism: Interrogating Maslow's Applicability in Africa* [65], *Framing ICT Access in Rural Africa* [119], and *Ubuntu, Peace, and Women: Without a Mother, there is no Home* [64]. Delegated representation was instrumental in the 'creation of space' to be taken for local, national and international exposure by Macha community members, for example, in the international media (BBC, DW), in conferences, for example, South by South West (SXSW), African Conference for Human Computer Interaction (AfriCHI) and in gaining community acceptance of the dissemination of research outputs for publication or invitations to make addresses and

present lectures. As the reconstruction continues, especially through the continuous revisiting[107] of particular research areas and further retrospection and introspection, a continuous stream of insights appears.

Collaboration

Many of the chapters in Part II, and some in Part III, are based on co-authored works. These works are based on my own research (sometimes in conjunction with others), reflected upon with my co-authors. They were written with the thesis in mind, but published or presented when ready, as the priority is to make community deposits, to provide my inputs to the community first, as soon as possible, and to solicit interactions on their content. I have realised that all knowledge is communal. Furthermore, in *ubuntu* the individual should not claim knowledge as their own or engage in activities that are prideful. Doing so would jeopardise my position in the community. In addition, to claim that any of these ideas or work is my own would be flawed as all interactions for the purpose of this research should involve more than one party sharing knowledge and ideas. All research is built on other endeavours and 'results' are only valuable if shared and useful to the community. Co-authoring in community is a wonderful way to share information/knowledge, which is the point of writing. Without this as the aim, I reckon, there should be no export of results from research done in Africa, as this would constitute more exploitation through the appropriation of knowledge.

Limitations and the Practice of Contextual Research

It cannot be underestimated how removed my approach and practice seems to be from the constraints provided by an academic training in Western epistemology-based research practices. In daily practice, I regard ethnographic research as all consuming, with one's being entirely engaged with the lived-life of the research. Or, as Cornel du Toit puts it, "[In pre-modern Africa] the person and what she says is one. This contrasts with the Western notion that the inner world of consciousness and thought is separate from the way the person presents herself in the world" [90:202]. I would amend that to include *action*, so the first sentence would become: 'the person and what she says or does is one' (because of embodiment, as we will see continuously in this thesis). Not following popular Western academic methodologies may be seen by many, especially with a Western scholarship background, as a limitation of this research. However, my explicit exposure

[107] I agree with Michael Burawoy's recognition that revisits are "a moral and human dimension to fieldwork that can lead to continuing engagement, but also good scientific reasons to revisit communities one has studied." [121:961]. I see both as one and the same in order to maintain 'embodied knowledge'.

of, and attempts to use, a methodology resonating with African contexts and worldviews will, I hope, be a worthwhile contribution of this work.

Further, I am middle-aged male person. Although I gladly present myself as to having a feminist outlook[108], I am physically unable to be seen as a female person and nor do I look like a typical African person. Therefore, I am prone to be linked into the label and social construct of being 'white' and carrying the backpack of undeserved 'white', 'male' privileges that comes with it.[109] Warren Chalklen [126] extends the 26 white privileges that Peggie McIntosh[110] [127] mentions to a list of 45, penned from his South African experience, showing the unique ways in which a passport of white privilege operates for each holder. Many, often unacknowledged privileges[111], have opened various doors for me through no virtue of my own and, therefore, require sensitivity to their existence. Active contemplation of their effects is crucial.[112] Although I wish to distance myself from any profiling of anyone, it is in the understanding that my countenance provides signals that I analyse these factors and recognise that, depending on the context, the labelling of my person occurs in line with contemporary and contextual social constructs. This labelling (and the privileges that come with it) can also be perceived as a barrier as it directly impacts on the interactions between the researcher and the participants in the research, especially in many African settings. Therefore, association with such labels needs careful and active mediation. In any case, understanding the shifting content of labels necessitates vigilance and constant analysis, also 'after the fact' [128]. As our understanding of 'history' is fluid, and memories change [129], and as I live in an oral society, I have been revising the labelling of my work continuously, and will most probably continue to do so.

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[108] Although I am not an African female of dark complexion, my outlook towards a redemptive alliance to feminism(s) resonates with Nyaboe Makiya's concept of feminism as a survival technique [122]. I align with feminism as it provides, in the words of Ina Wagner, for "possibilities for opposition, critique, and resistance to dominant ideologies and practices in science and technology" [123:256], while recognising that "feminist (in the broadest sense of the term) traditions have existed in Africa as far back as we can go" [124:20].

[109] "Whiteness is a constantly shifting boundary separating those who are entitled to have certain privileges from those whose exploitation and vulnerability to violence is justified by their not being white" [125:17].

[110] Peggy McIntosh [127] used the metaphor of an invisible backpack of 'white' privileges in her text, in an attempt to uncover the unacknowledged (mainly) privileges of white people.

[111] My privileges include, among many others, an initial basis of Western education, a European passport allowing for relative unrestricted travel, a middle-class heterosexual male gender, and an able body, among many other things.

[112] Consciously, I try to refrain from enjoying many privileges. However, there is no guidance that I know of that dictates where the limits and borders are. I consider them as an output of history and political status. Limiting one's privileges comes with considerable backlash in the form of misunderstanding and/or rejection by peers, whom, mostly unconsciously, may feel judged in their actions, which could derive from their ability to perform on privilege.

All of the above influence my views on, and choices of, applicable methods. For instance, these factors affect critical discourse analysis, participative observation, interviews, and the assessment of notes and other textual deposits, although I state this with hesitation. When the focus of analysis is the agency of *the individual* as the focus of control, and the analysis, observation, interviews and assessment take place to unearth views around that focus, I question even the applicability of those methods in Africa [24]. One is much constrained in Africa when a study is framed in 'individualism', as an 'individual' is approached from a communal perspective in many African philosophies. In my observation, methods are usable only when they are sensitive to contextual realities, like, for example, 'African event timing'. [113] Therefore, I use non-probability sampling techniques, such as *convenience sampling*, working within the (ever-expanding) network of relationships and aligning with "the rhythms of the non-human environment, such as the winds; the tides; the needs of animals; the seasons and weather" [130:np], with observations, interviews, and other interactions being scheduled according to their accessibility.[114]

These practicalities are often culturally mediated, but are also affected by the sheer size of countries and distances between communities, the availability and usability of communications networks, the boundaries in time and space set by government permits, and so forth. Certainly, they also depend on the number of roles that can be handled in various settings, for example, at home, in the community, in academia, and so on.

[113] Nicola Bidwell *et al.* [130] show that different conceptualisations of time do affect research. In this example, a different concept of time yields dilemmas and paradoxes in African practices, as (Western-conceived) methods and their tools embed and propagate 'modern' values in a dis-embedded relation to time, instead of African embedding of activity in local temporal rhythms. I conceptualise African time as an 'event-time', like *a corkscrew* [19:22], being both circular and longitudinal at the same time, and events 'happen when they happen', with a 'lead in' period – where the event is emerging – and a 'lead out' period – where the event is tapering off.

[114] In this respect, in general, events are *inclusive* and, therefore, whomever (happens to be) present at the time and location of the event is by definition a participant in the event.

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Chapter 3

Information and Knowledge Transfer: The Case of Macha, Zambia[115]

Contents

[115] Based on my paper 'Information and Knowledge Transfer in the Rural Community of Macha, Zambia' published in 2013 in *The Journal of Community Informatics* [1].

Sensitivity to Data Embedded in Orality

The introduction of scientific 'solutions' to problems in rural areas of Africa has had mixed results. A variety of factors hamper the local adoption of technology. Few projects exhibit sustainability or the potential for scaling up. With the exception of anthropology, little research seems to have been done on *the context* in which technology is introduced. Such research is needed as to include salient philosophical and practical aspects as they present themselves in context. For instance, in rural Africa, issues of orality versus textuality are current affairs [2]. The cultures in rural Africa are still largely dependent on orality, that is, they are 'word-oriented' rather than 'object-oriented', although some writing does occur. Hence, while introducing technologies, it is crucial to unearth the relevant and effective forms of interaction. My study did so through immersion and assimilation in the local culture in as many aspects of the work as possible. In general, as a result of a paucity of research on technology in context, there is little information on how to incorporate oral knowledge in transdisciplinary systems, which affects thinking (and problem solving) in engineering and other fields.

This chapter looks at information and knowledge transfer in rural Africa, specifically in the community of Macha in Zambia. It is based on my paper published in *the Journal of Community Informatics* in 2013 [1]. It strives to enhance understanding of how information and knowledge are transferred in communities relying on the primacy of orality, in line with the principle that "development must also be conducted on the terms of those being 'developed' " [3:33]. It presents my observations in-situ and describes how orality affects all interactions in these communities. These findings lay the ground work for the research practice used in this work in rural Africa.

Informed by Long-Term Involvement

This chapter introduces my deductions on how information is being communicated, processed, and turned into knowledge, and how these interactions are being dealt with, in a predominantly oral culture. It is based on many years of action research (since 2000 in rural Zimbabwe and since 2003 in rural Zambia) using a participatory oral research methodology, assessing the introduction of information and communication technology in the rural communities of Macha, Zambia, while at the same time identifying and inspiring *local talent* in order to build the necessary capacity and intent for community-led activities to yield sustainable human development outcomes. For me, these deductions are fundamental for a perceptive and for the respectful handling and processing of information so as to be able to inform the ongoing work, to develop a framework for identifying the drivers and dynamics of change in rural African communities, and to engender leadership capable of inspiring, sensitising, implementing,

and operating technologies for sustainable progress in local communities. 'Sustainable progress' is defined as improved life conditions for all people in this world and encompasses intellectual growth, cultural and social wellbeing, and economic fluidity. In today's world, engineering and technological sciences play a major role in effecting sustainable progress [4].

The building blocks of my research were observations and interactions in the community, which feed back into the research; in other words, the outputs influence the inputs (for example, the results of the observations and interactions affect how the researcher observes and interacts). This challenges the 'theory of universals' (which claims that definitions and realities, or 'universals', are the same everywhere), within the context of the local, rural community of Macha. Instead, it assumes that the context in Macha, a society using oral means of communicating in rural Africa, is significantly different from that in many Western text-based cultures. It is further argued that this affects the way that information and knowledge is transferred in the community, which, in turn, affects the way that information can be gathered and processed by researchers.

Set in long-term community engagement, my research activities sought to recognise and promptly align with the formats with which to communicate analysis, interpretation, and clarification suitable primarily for local use. While living-the-life in the community, my efforts hinged on discerning the specifics of the oral tradition, in which empirical and factual data, their measurement and meaning reside within oral culture. This, for instance, involved observing the oral processing of data through careful interpretation of multiple and circular interactions and the handling and processing of information in the practice of meaning making in various communities. I recognise such 'processing', as an oral analogy of the processing done in networks where data exists in digital formats (like, for instance, in social networks) and it did show to result in useful outcomes applicable in local African communities and beyond.

Gleaned from Community Interactions

As mentioned earlier, the research took place in African communities, with a focus on interactions in the rural village of Macha, Zambia. Macha is a typical, resource-limited African community, where members live a subsistence lifestyle in scattered and autonomous homesteads with very little technology infrastructure. The Macha chiefdom has approximately 21,300 residents in an area of 20 x 30 km.[116] The central area contains health and education facilities, retaining a small number of medical and education

[116] Data from Chief Macha via Fred Mweetwa, 2016.

professionals. The vibrant local culture can be characterised within the classical African concept of *ubuntu*.

Ubuntu (which is described in detail in Chapter 15) is part of an African philosophy that provides guidance on how to express communal love and good behaviour in a community. It underpins African cultures and runs counter to the concept of 'individualism', which is dominant in Western culture. Archbishop Desmond Tutu describes *ubuntu* as follows:

> *A person with Ubuntu is open and available to others, affirming of others, does not feel threatened that others are able and good, for he or she has a proper self-assurance that comes from knowing that he or she belongs in a greater whole and is diminished when others are humiliated or diminished, when others are tortured or oppressed.* [5:34]

In terms of the use of literacy, Macha is a mixed environment, with medical, agricultural, educational and juridical entities that (partially) use writing, embedded within a community whose members rely on communications set in primary orality, with little exposure to – or use for – texts.[117] As such, Macha represents a predominantly oral society.

Although the official language of Zambia is English (which was introduced by imperialists and colonialists and continues to be used in official communications), indigenous languages are commonly spoken. These languages are part of the Bantu group of languages and include Lamba, Kaonde, Tumbuka, Ngoni, Ila, Senga, Chewa, Chibemba, Nsenga Chinyanja, Lunda, Chitonga, Kaonde, Silozi, Nkoya, and Luvale. Estimates of the total number of languages spoken in Zambia vary from 43 to 70, depending on whether some dialects are counted as languages in their own right [7]. Urban dwellers sometimes differentiate between urban and rural dialects of the same language by prefixing the rural languages with 'deep' when referring to a rural dialect [7]. In the capital, Lusaka, most people speak Nyanja or Bemba.

Chitonga (or Tonga for short) is the main language spoken in the Macha area. Although the language is written, like most of the over 3,000 languages spoken in the world today,

[117] Walter Ong defined "the orality of a culture totally untouched by any knowledge or writing or print, 'primary orality'. It is 'primary' by contrast with the 'secondary orality' of present-day high-technology culture, in which a new orality is sustained by telephone, radio, television, and other electronic devices that depend for their existence and functioning on writing and print. Today primary oral culture in the strict sense hardly exists, since every culture knows of writing and has some experience of its effects. Still, to varying degrees many cultures and subcultures, even in a high-technology ambiance, preserve much of the mind-set of primary orality" [6:10].

Tonga does not have a literature base. Consequently, many people in the community do not use any writing and are not in contact with written words. Institutions, events, economic practices [cf. 8] and processes (Foucault's non-discursive practices, [9:162]) are hampered by the cultural precept of omitting textuality. The avoidance of writing is further aggravated by material disadvantages, such as lack of paper and pens, the unavailability of reading materials, and lack of formal business structures. Further, the older generation, who provide community leadership, insist on the primacy of orality in Tonga culture.

The Internet was introduced in Macha in mid-2004. In its early stages, the limited local reach of the network and, therefore, unavailability of local users resulted in communication with users outside the community only. Up until the arrival of telephone services in late 2006, the only viable means of interacting locally was face-to-face or through notes.

Orality versus Textuality

In his book: *Orality and Literacy*, Walter Ong expands on the differences in managing knowledge and verbalisation in primarily oral cultures, versus writing (chirographic) cultures. Ong notes that, for those acquainted with literate culture – by definition those who read a thesis like this – thought and its expression in oral culture appears strange and at times bizarre [6]. Much of Ong's observations are diachronic – he views the phenomena as they develop through history – although in recent work he hints that further research on the differences between orality and literacy might produce new and interesting insights [10].

There seem to be little transdisciplinary research on the interaction with, and integration of, technology in societies that use orality as the main means of interaction[118]; the use of written text seems to be the norm. Some of the reports that exist on the challenges involved in doing research in such cultures are rather superficial and condescending (see for example, Eric Brewer *et al.* [11]).

Although there is a persistent tendency among scholars to consider writing as the 'right' form of language, Ferdinant de Saussure notes both the usefulness and shortcomings (as well as dangers) of written language [12]. Changes in mental and social structures have also been accredited to the use of writing (see for example, Jack Goody [13]). However,

[118] Notable exceptions to contextually embedded research works in the field of human computer interaction (HCI), for instance, in South Africa by Nicolas Bidwell and Thomas Reitmaier, and Carlos Rey-Moreno.

more than 1,000 years ago, Plato already expressed serious reservations about writing in his work: *Phaedrus and his Seventh Letter*. He depicted writing as a mechanical, inhuman way of processing knowledge, unresponsive to questions and destructive of memory [6].

Research reports show the complexity of, and vast schism between, oral and textual culture. Obviously coloured by conventional wisdom (based on North American and Western European intellectual hegemony), orality is explicitly or implicitly attributed with "a lack of introspectivity, analytical prowess, and concerns with the will" [6:30]. In this respect, the following observation by Salil Sayed *et al.* is also helpful: "[The] Adaptation of technology and the becoming of a person is not separable conceptually from the evolution of the complex system that the community is" [14: online]. However, even studies of complex adaptive systems rarely take into account a measure of orality as a context-sensitive constraint.

The Problem with Using Literate Research Methods in Predominantly Oral Cultures

While studying, debating, and communicating the empirical evidence, I experienced feelings of excitement and frustration. In general, due to the transdisciplinary nature of the research, discoveries and additional knowledge were difficult to align with, or relate to, the extant literature and other research. As shown in previous chapters, most existing methodologies do not describe the context-respectful design of communications and interpersonal approaches in relation to technologies in oral traditions. Little guidance was to be found in disciplinary, cross-disciplinary or multi-disciplinary literature dealing with these issues, particularly as to how to proceed in rural Africa.

In general, scientific rigor aims for models (described in scientifically-accepted ways) into which realities are inputted for dissection and scrutiny. In rural Africa, the tensions witnessed in daily interactions clearly show how science floats on post-modern paradigms, heavily influenced by Western ideas and perceptions, insisting on self-interest as the guiding motivating force in society. Further tensions confront the scientific precept that information can only be validated when it exists in written form. Such guidance does not make sense in communal, oral traditions. It masks our understanding of the holistic and interactive rural African reality and fails to take into account oral reporting and interaction formats, such as sensitisation by participatory community discussions, formal community meetings (Tonga: *muswangano*), sketches (*chisobano*), musical lamentations (*kuyabila*), singing, dance (*kutazula*), and multimedia representations (produced by participatory video production [15, 16].

Scientific methodologies invariably consist of the transformation of the many relationships and operations in existing reality into a deconstructed, single-disciplinary, dissected written image in Western language – transformed from one domain to another as if it were a mathematical Laplace transform operation. A Laplace transformation shows how something that cannot be solved in one domain can be 'transformed' to another domain for processing and subsequently 'transformed' back to the original domain to provide answers [17]. During this research it was found that such an approach of domain translation – in this case through language – appeared foreign, and even offensive, as it is drawn from a world that the people in rural areas do not share and are even excluded from. The sad thing is that people operating outside mainstream scientific systems are often treated as having an inability to comprehend, with contempt or even as having 'failed'.

There appears to be considerable anecdotal agreement among researchers in various fields that the use of software, paper, and so-called 'rational methods' (for example, textualisation) is mandatory for good scientific research. Other methods of interaction, data storage, processing and studying (for example, oral methods) have received severe criticism and the research findings are often rejected. These constraints weigh heavily on local and national African researchers, ultimately excluding local practice from the body of 'good scientific research' and, therefore, academic attention. Consequently, valuable information is lost — for instance, somatic components[119] — while resulting scientific expressions and theories remain foreign to local communities.

There is a limited number of long-term, interactive studies on engineering, economics or other exact sciences in rural areas. Where such studies exist, they mostly covered short periods of observation, often in a rural-urban setting, rather than in a 'deep rural' setting. When using the results of such research and discussing them with people in rural areas, I have found that the findings are often not recognised or readily understood. One could even argue that there is little evidence that software, paper and other tools have been useful in engendering human agency in rural Africa. The non-discursive expressions of scientific knowledge, which are reduced to abstractions in English texts, seem to have little discernible effect on — and may even prohibit the inclusion of — oral societies. If the end product of foreign academic research is a take-away text written in academic English, then the foreign academic can be accused of appropriating local culture for private, foreign profit, leaving the local community objectified and exploited.

[119] Somatic components are the expressions formed by the body, for instance hand activity, gesturing, orientation, motioning (or the absence of them). Walter Ong observed: "Bodily activity beyond mere vocalization is not adventitious or contrived in oral communication, but is natural and even inevitable." [6:66]

I postulate that research in many African settings requires a primarily oral research process within the oral tradition, so as to link the research more to the environment, thereby maximising the chance that research yields applicable and adaptable results. Perhaps it can be described as doing research the '*ubuntu* way', which would facilitate acceptance of the results by the local community [16]. Such research endeavours to assess the expansive, constantly-changing, complex, inter-related communal realities and cultures in many African communities, and to expose evidence of those realities. As such, this chapter builds on my assertion that oral thinking in intelligent people is sophisticated and reflexive. It also lays a foundation for Chapter 4, in which I will present the research method and design used in this study.

Of course, all of this poses many transdisciplinary logistical, methodological and conceptual challenges for research. Logistically, it calls for a long-term commitment in a local setting by the researcher in order to gain understanding of the community. Methodological challenges deal with issues of local relevance and conceptual challenges deal with how to describe the research in a literary format. These challenges, of course, need to be addressed, but their mere existence does not negate the need for a methodology and design that is suitable to the realities in (rural) Africa.

Recognising Empirical Evidence, the Oral Way

As mentioned earlier (see Chapters 1 and 2), my family and I have been fully immersed in rural communities in Africa since 2000. As a result, we continue to experience the local oral culture first hand. Unlike my children, I am not able to converse in indigenous languages, which means that I have to resort to English as an intermediate, which is a secondary language for almost everyone (when available). All parts of my life – private and public – are regarded as integral parts of the community interactions.

From mid-2003 in rural Zimbabwe and mid-2010 in rural Zambia, I withdrew from daily operational activities to observe and validate from a more distant vantage point. At that time, my relationships with academics intensified in a continuous attempt to develop theories that explain my observations. A series of collaborative academic papers was embarked upon, explicitly positioned in the epistemology of my rural habitat. These writings explain the setting up of ICT in Macha [18], engineering feats and users' behaviour [20]. The writings enhanced and intensified the debate on the activities in Macha, the observations I reported were scrutinised by both the community and academics in public and online formats.

Although the main theme was the introduction of ICT in rural Africa (with sub-themes of how to engender appropriate leadership and view sustainable progress), data gathering was explicitly undertaken to line up with the verbal, word-attentive, and person-interactive context, instead of settling for a quantifying, object-oriented approach, which is the 'normal' approach in natural sciences.

During this research, I interacted directly and indirectly with all stakeholders in the communities. All of the data that was gathered was extensively scrutinised, discussed, studied, and validated in ongoing interactions with 'local talent' and selected community stakeholders. Interactions took place during long, careful and open-ended conversations with community members and stakeholders, on local, regional and national levels.[120] Questions were carefully posed and emerging knowledge and deductions were fed back into the research instantly. Facts were gathered as statements of human beings describing the actuality and environment in which they exist in formats conducive to the nature of the encounter.

Attempts were made to keep the process in line with theories and interactive loops of participatory action research[121], resting heavily on methods of *appreciative inquiry*. Written derivatives were produced only in formats allowing for community dissemination, for instance, in the form of online blog posts. These were merely additional to the oral, culturally-stored information.

Views on Textuality

On writing

Many barriers to data collection exist in the settings in which the research was carried out. In this research the use of writing and paper was avoided. The main objections to the use of textual records, which I deduced from the interactions with community members in Macha and other rural areas were:

[120] In the paper *Stakeholder Theory and ICT in rural Macha, Zambia*, Astrid Kroczek, Fred Mweetwa and I provide insight into the complexity of stakeholder engagement on various levels, for instance, traditional leadership and churches at the local level and the government dignitaries at the national level [21].

[121] Action research, Brian Christens and Douglas Perkins [22] argue, allows for integrative collaboration across multiple disciplines in community research and engenders a psychopolitical validity by unearthing power issues and interventions that foster(ed) structural change. Action research seeks effective collaboration among researchers, community members and policy makers [23] in a cyclical approach - look, think, act, again and again - to refine understanding of processes and facilitate development and understanding [24].

- **Written texts instil uncertainty and are unclear:** The local perception is that text allows for word play, while verbal communication is regarded as clear. In contrast, verbal communication ensures certainty about who knows what is being said and preserves non-verbal information (for example, the contextualities and somatic expressions). Certainty about 'who is present' and, therefore, who knows the information *as it is communicated* is highly valued.
- **Written texts implicitly allow the inclusion of 'others' in the conversation:** The local perception is that anyone who reads a text is a part of an ongoing interactions, because this implies interaction with the information. The concern is that the deductions that can be made from written texts and their effects on relationships might not be controlled. As a result, writing entails significant cultural challenges.
  During the research it was observed that bringing written texts, or even paper, into the room completely changed the atmosphere of the encounter. Even writing on the (content of) a meeting posed difficulties, as participants were apprehensive about acknowledging written text as a representation of the content of the meeting. This appeared to relate to past experiences of written texts being used to 'shame people'. This presumably happens when people in charge show 'mistakes' in texts and thereby bring shame to the writer or the person who is referred to in the text. Thus, writing appears to be seen as a means of exercising control.
- **Written text is seen as imperialistic:** Written texts in the community are mainly for administrative purposes (of policy or procedure), presumably in line with the pre-emptive and imperialistic use of texts in history. Local writings follow aggregative thought lines, composing on paper how the thoughts would be said in oral format, mostly void of forms of abstraction.

On data gathering

The research period was filled with a huge amount of observation, participation, and lengthy, often unstructured, interviews with people. Most of these interactions took place 'on the fly', happening when they happened, without pre-planning. On certain days, more than ten meetings might take place, ensuring that information on the content of the verbal exchanges was shared as quickly as possible, thereby minimising distortion.

Data thus collected was stored in an 'oral manner', that is, residing in the minds of people. Amazingly, this information (i.e., words spoken) can be readily recalled by local people, especially when related to an event. The memories of oral people are formidable. The way data is stored in their memory can be seen as the 'remembrance of the meeting as it transpired'. The existence of the data can be tested by interviewing the person to retrieve and re-assess the information. The data not only contains the record of evanescent sound, but also all non-verbal communication (such as the season, place, sun position, mental state of the people present, seating arrangements) and somatic

information (such as gestures and facial expressions). In this way, such oral records are immensely more detailed and accurate than written records, which are one dimensional in comparison.

Community members mentioned that one of the advantages of verbal communication is its efficiency. Information exchange takes place faster than the speed of writing or reading (up to 10-times faster [cf. 18]). Verbal interaction is instant and offers the ability to assess comprehension and effect. Often, interaction with one stakeholder must be instantly followed up by interaction with all stakeholders to ensure a 'level playing field' and to assess resulting changes in relationships. Only at a later stage in the processes, after the research and interventions had been established, could interactions become more individual, presumably when my delegated authority over certain issues was firmly established. Only early in 2011 did I feel grounded enough to attempt an enquiry in written form, through an online survey on the use of Web 2.0 tools.

On data processing

The processing of the orally-stored information was done in the oral equivalent of 'social networks'. Networks of community members and stakeholders validated the orally-stored data and processed it in meetings and discussions. In that way, the aggregation and abstraction of information was recognisable and the output was evident in various modes of communication. Tangible outcomes in change processes are a measure of the acceptance of the change by a large enough majority of the community (large numbers of people affirming their support for a change within the existing cultural reality and individual community members displaying explicit comprehension of the change and its benefits, each having had a hand in the change). This happens through various formats, including stories, songs, and human interactions. Social networks change with membership and existence, are inclusive and in constant flux, ensure relevance and efficiency, and lead to outcomes that empower individuals with the necessary authority to embed the change.

The first social networks explored were local, involving community leaders, and then – upon the recommendation of my interlocutors – slowly incorporated a wider representation of the community. Eventually the networks became national in the same way. Over time, the networks expanded even further to include international relationships. The format/presentation of the social networks varied. Some were physical meetings, others consisted of participation in cultural meetings or other events (for example, weddings and funerals). It all depended on the available physical capacity and *presence* of the researcher, the reach of ICT (telephone, Internet, radio), and travel opportunities and constraints. The research was greatly enhanced by the introduction of an aeroplane in Macha, which expanded the geographical scope and efficiency of the

research. This enhanced the speed of data sharing, as well as its acceptance on national and international levels.

The Need for Oral Research Processes

I postulate that as the people involved in the research (for example, those in the rural community of Macha) are mostly intelligent and masters of their mental processes, the use of all verbal communication, as per oral culture, is a valuable and valid means of research. As mentioned earlier, the local community primarily validates evidence through oral means, not through interaction with written representations. In practice, this means that oral information can be verified by anyone present, while the validation of written communication is deemed virtually impossible as its content does not register as available or secure.

It was found that the assessment of the data reviewed aspects of 'being together' and other content, such as attitudes, virtues and beneficiation. These aspects are mostly overlooked in analytical processes that look at individual, constituent parts of data and their interactions (in processes of reduction and deconstruction). While assessing the data, it was always asked 'who was present?' and 'what was the disposition of the inter-actors?' and all of the circumstantial data was acknowledged and incorporated. Further, moral issues were included in the balancing of the data (in line with virtue epistemology, see Chapter 2) and input from the environment and location were taken into account. For instance, inputs emerging from within urban environments were valued differently and not necessarily recognised as informative for a rural environment.

When storing and assessing data in oral cultural formats, assessments of causation include all aspects of the data, including non-tangible aspects like the 'character' and 'authority' of the speaker and so on. Ironically, what seems to be a simple deduction for a person from an oral culture was often a very complex assessment for me. I found myself overlooking relevant aspects as soon as the focus and setting became 'documenting'. Further, data process in predominantly oral cultures is highly interpretive, involving searching for meaning and inter-relational messages in the data and incorporating systems and methodologies that involve traditional experience, knowledge and wisdom from history.

The data processing stage takes place during face-to-face conversations with leaders, groups of people, or other social networks. At this stage, the community discusses the meaning or effect of the matter at hand. Often, discussions are linked explicitly to phenomena. The tangible expression of the outcome of the processing is the one that most easily transfers orally through the community. Oral culture severely restricts

experimentation or adding new information without the community's consent, and the whole process of 'processing new information' is something that in itself must be accepted by the community. The conceptualisation of the information emerges naturally through the process of verbalisation, often incorporating aspects of the immediate, familiar environment. As such, the 'new world' is assimilated into the 'old world'. All high-tech interventions, like the introduction of ICT or an aeroplane, are narrated as events involving people, like a medical doctor sourcing a car on the Internet and key stakeholders, like the Chief and Bishop, flying on the first aeroplane ride from Macha's airstrip. This correlates with the fact that oral cultures do not use counts, statistics or linear facts, but, rather, keep track of activities that humans are involved in [25].

It was found that the vernacular language (which is part of the Bantu group of languages) seems to prioritise information on interactions, not items. Thus, through verbalisation, the community describes the (degree of) interaction with technologies and their developments. This in itself constitutes a means of identification with their development, where the mere fact of the availability of a verbal expression indicates the existence of the event. In contrast, the content of information in disembodied formats (like written texts) is not regarded proof of the claims that the information endeavours to communicate. For example, a person might argue 'it happened, see this written account!', to which an oral person may respond: 'interesting, I am not sure if this happened, I hear no talk about it'. For observers from other cultures, due to inherent language barriers, this difference in the nature and subject of communication is not directly obvious. However, its effects are clearly witnessed, especially during times of difficulty. Oral communications put the focus on 'today' and are highly efficient and relevant to everyday life in resource-limited environments.

Further, cultural expressions in rural areas do not use formal deductive procedures or pure logical forms, but work with more practical thought patterns. Whether something is considered 'true' depends on the assessment of the whole (for example, 'who/when/why/where/how is one talking'), not only in the data processing stage, but also in the acceptance phases (I refer again to the example given in the preceding paragraph). I observed that most people who work with technology on a daily basis describe technology in terms of its functionalities and assess its benefits mainly in the operational context.

Lastly, interventions or activities are never immediately accepted in oral cultures like Macha. Lots of time is needed for the meaning of new occurrences (the data) to mature and be incorporated into community life, and thus the culture, by means of verbal communications. When a new intervention comes up more or less unexpectedly, the

community default is to 'wait and see which way the cat jumps' or go back to 'the default' (the reality before the intervention).

Discussion

My expert background in engineering, strategy development and social entrepreneurship influenced my ability to achieve interaction with the stakeholders in this research, as I could perform as a skilled participant in practical activities. In the inclusive environments I experienced in rural Africa, it often proved impossible to interact only as an observer. A local culture like in Macha demands a transaction for sharing information, either by 'being together' or exchanging information. Reactively, the effect that my presence has on the phenomena under investigation is significant. Due to the inclusiveness of local culture, even this reactivity can be seen as data [25]. Further, my presence and subsequent inclusion in the local community provided 'space' for *local talent* to emerge and interventions to mature.

In rural Macha, social interactions are most important. Of course, there is the always the possibility of me forcing insights that do not correlate with observations. To counter this, my expansive social networks facilitated personal peer-review and mentoring during every step in the process.

This chapter presents an additional view on adherence to scientific rigor, with data gathering, processing, theorising and dissemination being done within the oral tradition. These distinct phases take place uniquely within the local culture, in the community. Further, I drew considerably from day-to-day observations and the analysis carried out in studies done by other researchers in Macha (especially those at the research institute located at Macha Mission Hospital). Incorporating these multiple sources of data, with the primary focus on locally-aligned (oral) sources of data and locally-aligned processes of data analysis, enhances the validity of the research [27].

It appears that data gathering, processing, and dissemination in oral cultures like Macha depend on the reaction of the receiver, the mood and the occasion – in short, social and psychological factors. Although exceptions do occur, the themes (and formulae) remain the same. Evidence is effectively presented and fitted to each unique situation. I was often astounded and humbled by the recollection of the details of events, including dates and specific words said, during testing of recollections by various people. This showed that in African settings, such as Macha, the process of interaction in the specific cultural setting is most important, as it indicates the attainability and sustainability of outcomes, as well as replicability.

The findings of my research correlate with particular observations; for instance, written *do-it-yourself manuals* often did not deliver the expected results. Or, during the study period, only a few times was a written document shown in response to a request for information. Information transfer by offering texts to read was not effective; in the communities, skills are mostly taught through apprenticeships that are focused on learning by seeing and emotive, senso-motoric thinking, with little use for written explanations. Leaders emerged after much observation and practice. Skills are recognised as embodied in people and part of their character, not in an abstract, measurable way.

Tonga people say '*mwana utambaulwi takomeni*', which means 'a child never talked about, never grows'. The community confirmed, in retrospect, that the process of implementation and acceptance of technology and infrastructures evolves the same way: by being talked about. Also, in the wider geographical context of people in other chiefdoms, the benefits of technology have become incorporated in that manner. This perspective was news to the community and led to a new, progressive community name: 'New Macha'. All of this allowed for recognition and permission for talented young people to emerge as new leaders in the community and take charge of the operation of technology interventions.

There appears to be little study conducted on the possible benefits of using oral characteristics in research. Findings in the primary oral cultures could be relevant to the second orality instigated by the spread of computing, telephones and emerging video culture. Of course, real and large drawbacks exist in relation to using oral culture, due to the complexity of the process and its transdisciplinary nature, among other things. However, the applicability of these findings in local communities and ethical alignment are greatly enhanced, making incorporation of oral research activities justifiable.

A non-reflexive chirographic-typographic mentality apparently blocks understanding of complex oral societies, impeding research into how to implement technologies like ICTs in rural areas of Africa (and other parts of the world). There is a clear need to incorporate processes that are enshrined in oral cultures so as to *enhance the relevance* of research and *ensure its usability*. The failure of many interventions, projects that do not scale (up), and technologies whose functions start to deteriorate immediately after implementation call for a fresh approach. The limited number of publications by non-western authors also supports my observation that (other) cultures seem unaligned/unable to incorporate current scientific methods and paradigms [28].

Although research is an integral part of the Macha environment – with a tradition of medical research at Macha Hospital – the activities of foreign academic researchers, which are often based on academic constructs that are alien to the local community, are

not well understood locally. It is questionable if a rigid sequential process of research (problem definition, data gathering, assessment, intervention design, and implementation) can lead to the necessary community acceptance. My experience is that most foreign researchers find understanding local cultures a difficult and time-consuming task. Time pressure and finance cuts most trials short. The disassociation of texts from research is psychologically threatening, as the control of scientists over research is closely tied to the handling of written texts. However, this chapter shows that a sole focus on written text can obscure the local culture and its way of interacting.

In Western cultures, written language generally functions to establish subtlety and formality, which are disposed of in oral communication in favour of the direct, clear transmission of ideas. Interestingly, my experience in Macha is of a different reality, in that the oral traditions do not reject such subtleties, but rather are littered with subtext and diplomacy to maintain the delicate balance of social norms.

Walter Ong postulates that "Oral cultures indeed produce powerful and beautiful verbal performances of high artistic and human worth, which are no longer even possible once writing has taken possession of the psyche" [6:14]. He deduces that "without writing, human consciousness cannot achieve its fuller potentials, cannot produce other beautiful and powerful creations", such as "history, philosophy, etc." [*ibid.*]. While these statements might be true when the research aims for applied outcome results in an Earth orbiting satellite, they are not necessarily true when the outcomes focus on applications in culture settings in rural areas in Africa.

Involving aspects of oral culture is important for sustainability. Even when people are trained in a 'Western way', I noticed that the skills taught are not necessary maintained or used. Trained persons appear to refer back to situational thinking (e.g., seeking subsistence and autonomy [29]) instead of categorical thinking – 'the way it was' – especially when under existential pressure (consistent with Alexander Luria [30]). As such, it is questionable if the sustainability of an intervention can be secured when underlying research processes are not in tune with the local culture.

Including acts of rhetoric in the community linked to any intervention is necessary, as the 'strength' of an intervention is tested in the arena of verbal and somatic manoeuvres. As presented earlier, in oral cultures it is that fact that 'it is being discussed' that makes it material; it is primarily about 'being', not necessarily about 'doing'. In oral culture, a change in 'saying' – evident through how an intervention is being discussed or described – is one of the proofs of change engendered.

There is much room for research reviewing the effects of cultural-specific social constructions, such as (an African philosophy and expressions of) science and technology, literacy and language, and research methodologies themselves, in light of the multitude of cultural realities. Such studies are much needed now that the Internet and travel are connecting societies at an ever-increasing pace. Insights are prone to be enhanced through such contextually-sensitive conceptualisation of interactions. They will also be enhanced through the use of the fast-growing repository of electronic multimedia data, such as podcasts and videos created by focus groups and community radio, which have been produced in Macha since early 2011 [31], provided they are produced in transparent ways and leaving community records.

Conclusion

This chapter describes my appreciation of the incorporation of oral methods in research in (rural) Africa. Putting orality at the front aligns with its importance in the cultures from which my research data emerges. Orality and oral narratives are valid data sources – not because of a presumed lack of availability of something else (*in casu*, writing), but because they are the preferred cultural choice for how the community conveys meaning. The choice of methodology for research in rural Africa, I argue, must be consistent with an appreciation of orality as a medium of communicating knowledge.

This chapter shows that the cultural specificity of text-based interactions and overly-rational methodologies are ill-suited for interpreting realities in rural Macha. However, keeping data in the oral realm can secure valuable and detailed information. It was also found that the processing of data in oral cultures produces worthwhile outcomes.

This chapter underlines the exciting potential of oral data and its processing and offers assertions that point to the existence of other forms of research practice, which are currently largely excluded from (Western) scientific practice. Even when an oral culture is transposing information into text, the role of orality remains significant. As oral cultures have a different way of assimilating technology, the workings of orality must be taken into account in the design of sustainable technological interventions in (rural) Africa. Based on these observations about orality, in the next chapter I will present the methodology I used in this research to ensure sensitive to the orality of the contexts in which I performed my research.

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Chapter 4

Methodology: Reflexive and Embodied Research

Contents

The most difficult thing in science, as in other fields, is to shake off accepted views.
James Thompson *et al.* [1:88]

The Extended Case Study Method

In Chapters 1 and 2 of this work, I positioned my research in both place (sub-Saharan Africa) and time (2003 to date). I also provided indications of the theoretical sensitivity of this research. Chapter 3 presented a rationale for a sensitivity to orality in research in rural Africa. These aspects – positionality, sensitivity, and orality – underpin my research approach, from which paradigmatic and practical challenges emerge.

Most of the research challenges that have emerged in my research relate to the variety of *positionalities* of the interlocutors (the people with whom I interact or converse as part of my research). Firstly, the interlocutors in the (rural) communities in which my research took place are embedded in an African context and its philosophies and communicate using orality. Secondly, there are my academic peers, who are located in various parts of Africa and other locations, mostly embedded in Western academic traditions and institutions. Thirdly, there are the many positionalities of the authors of the literature I draw on for this research, which can be roughly bifurcated into those of Western origin and those of non-Western origin. Fourthly, there are my audiences, who are made up of different individuals and communities, each dwelling in a different context and tuning in to these messages from diverse positionalities and with different worldviews and experiences. Finally, there is my position as a third-culture academic. All of these positionalities are interwoven with the different (real or imagined) power distances between the various interlocutors, each of these changing over time and according to place.

This chapter sets out my research methodology, which includes transdisciplinary, reflexive and embodied means of examination based on the extended case study method, as outlined by Michael Burawoy [2] (see also Chapter 2). The extended case study method allows the researcher to struggle with theory, revise it, improve it, and reconstruct it [2:19]. Its stance toward theory is, according to Burawoy, *kamikaze* [2:53], in that it is prone to dismantling theories. In the Chapters 1 to 3, I argued there is a paucity of contextual, embedded theory and research practice relevant to Africa. The theories that I have stumbled upon are mainly situated in Western time[122] and talk to Western

[122] Chronemics is the study of the role of time in communication. Western time is understood as monochronic (linear) time, which lends itself to careful planning and scheduling. Polychronic time, which is more common in high-context cultures (in which communication is more implicit and assumes a great degree of contextual knowledge) in Africa, focuses on human interactions

audiences. In this (and other work), I aim to provide a structuration that I hope talks to the local community first, then national and international audiences (in that order). As a result, I am in a void of theory.[123] This results in a lingering feeling of discomfort, which I have described in several publications (for example [5, 6]).

Although Burawoy focuses on the need to challenge existing theory, for my work there is little existing or applicable theory available to challenge. There is almost a complete void of accessible academically-recognised, embedded or embodied theory that contains reflections by, on, and for the benefit of rural African communities. Gratefully, I read Burawoy to argue that *existing theory* includes both academic theories and indigenous narratives. Sensitised by the inclusive approaches in transdisciplinarity, I concur with this view. African philosophies and transdisciplinarity are in line with Burawoy's inclusive standpoints. Therefore, due to the lack of anything 'solid', even *preconceived ideas*[124] might be considered to be an input of the methodological need for theory. I argue that many *theories (*contemplative and rational types of abstract or generalised thinking) on *rural areas* are not necessarily applicable or, therefore, useful for review (I read Burawoy focus on *theory*[125] to regard its interpretative agency for 'sensitisation'[126]). In this view, a theory provides more than literary content available to be amended[127]. In my reading of

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and relationships rather the handling of artefacts. In this setting, *things happen* in their own time with people performing many tasks at the same time [3, 4].

[123] Michael Burawoy also encountered this; he found that when searching for "the supernational forces, transnational connections, and postnational consciousness – there really was no worthwhile global theory to reconstruct" [2:18].

[124] In March 2010, I noted: "It is obvious that pre-conceived ideas play an influential role in the process of communications. They challenge what one sees as an important part of the Macha Works road map. With the distinct phase of 'looking', we challenge pre-conceived ideas that often come unconsciously and can deceive" [5:71].

[125] As cited in chapter 2 'Methodology and Practice', Michael Burawoy states "We don't start with data, we start with theory. Without theory we are blind, we cannot see the world" [2:13]. However, when theory is tainted by – or set in – a foreign epistemology, the theory represents a 'mythology' that potentially results in inequality, discrimination, and exclusion.

[126] The key role played by sensitisation in the African environments, which I have written about previously [4, 6], is a theory coming out of the interactions in Macha. This emerging theory amends short-cut statements (e.g., pre-conceived ideas), such as the general statement claiming there is an 'urgent need for training in Africa'. In fact, in Macha, I saw that training constitutes a consecutive stage, following the crucial and preparatory stage of 'sensitisation', to ensure stakeholder involvement and grooming for local capacity enhancement, without which training would be obsolete [7].

[127] If the reverse were held up, the task at hand would be beyond the ability of the African researcher, as the amount of theory *about* Africa is so large that refuting it would overwhelm African academies – especially in view of the small number of researchers from, in, and for Africa and the lack of research funding for such work. Furthermore, as I noted in a keynote address at the 1st Institute of Lifelong Learning and Development Studies International Research Conference in Chinhoyi, Zimbabwe: "Could such an investment of time and effort [to study the avalanche of

African philosophies, I deduce that such a philosophy does not regard theory as something to be amended, but approaches the academic realm more as a repository for *descriptions of intellectual praxis* that are available for augmentation. According to this understanding, theories that are *impractical* simply die out and are rendered void because nobody *talks about them*[128] (see also Chapter 3). Therefore, in this study, the academic method and available theory act as a *springboard* from which to get started; they do not necessarily (need to) provide the prescriptions to remain intellectually afloat. It is through reflexivity, initially within the framings provided by the local context (that is, within the community) that the theoretical translation of embedded and embodied realities becomes possible.

Transdisciplinary Inclusivity

Before talking more about reflexivity and the extended case study method, I would like to discuss transdisciplinarity – which is an intrinsic part of my research. The transdisciplinary approach allows for a holistic and borderless intellectual undertaking that deliberatively avoids compartmentalisation – or silo-thinking – which narrow, single discipline-oriented theories often represent [9, 10]. Du Plessis *et al.*, in their case study of South African examples, see transdisciplinarity as looking to facilitate:

> *…the attempt at formulating an integrative process of knowledge production and dissemination [that] prompts researchers to respond directly to the multi-layered challenges of diffuse disciplines and interlinked socio-economic problems. Bringing together the complex character of realities stimulates unification of knowledge paradigms.* [11:24]

From Kui Mackay [12] I deduce that transdisciplinarity can be instrumental in gaining an understanding of the intersectionality of identities and systems of oppression. By its very nature, transdisciplinarity allows for multi-level action research [13].

In this study, transdisciplinarity means augmenting the extended case study method to assess Macha Works using my broader and embodied observations. This complementarity not only requires sensitivity to a variety of existing theoretical perspectives, but also reflects on the observations and various forms of evidence regarded as 'proof' from multiple (or any) angles, for example, from an African

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foreign works and cite such work for academic survival] not turn out to be counterproductive, and possibly be a detriment to African development?" [8:np].

[128] The sensitivity of 'which theory is talked about' in the local community, the larger area and the global (in that order) is, therefore, an integral part of the reflexive stance applied in my research.

positionality, from community engagement, from cultural interactions, or from metaparadigms. Transdisciplinarity allows for non-linear, relational and 'intuitive' thinking to be used.

Transdisciplinarity is counter intuitive to those with an expert focus when trying to understand each individual unit of a deconstructed, particularised reality. As transdisciplinarity is sensitive to the diversity of history and geography and more, it can yield, as Bruce Robbins [14] points out, *difficult generalisations*. Transdisciplinarity allows for connections to be made between previously unconnected areas. In this process, in Africa, I often find myself lacking appropriate English words to describe the resulting outcomes.[129]

An interesting input for transdisciplinary sensitivity comes from the encyclical work by the Catholic Church on the environment and poverty. In his Laudato Si', Pope Francis [16] elaborates on the human decisions that influence our common habitat and how issues such as poverty and ecology are being looked at. He argues that although these views seem a-political and informed by data, understandings are ultimately based upon our values, which are shaped by the moral values humans adhere to. Thus, our understanding is embedded in context. It is, therefore, no wonder that Jürgen Mittelstrass found fertile ground in the religious environment of the Vatican to put forth his call for transdisciplinarity [9].

Reflexivity – Sustained by Communal Grace

In preceding chapters, I introduced the tangible attributes of my person, both in time and place. However, in the community, the declaration of myself is less a listing of tangibles and more an issue of *identity*.[130] Therefore, this work should be read not as a declaration of what I *do* or *did*, but a declaration of who I *am*, about my *being*.[131] In the community, I am primarily what I *am*, not what I *do*.[132] This work, therefore, is not primarily a

[129] This resonates with Ania Loomba, who noted that "*new terminology and a new reaching across disciplinary boundaries* became necessary in relation to the study of colonialism" [15:5, emphasis added].

[130] With regards to my identity, I am what I am by the grace of God. In this identity, I am not defined by what I *do*, but by who I *am* in reflection of the Higher Authority. Aligned with an African contextual understanding of personhood [17], in this research, I was not necessarily able to respond to foreign labels, such as, for instance, 'researcher' nor *was I* or *did I* act in light of essential natural capabilities.

[131] Jasper Bets *et al.* [18] qualify this 'being/doing' paradox as utilising one's *authorised being* to *hold the space* for change to come.

[132] This position is perpendicular to Hannah Arendt's concept of *homo faber*, who must *act* to have a sense of existence [19].

description of what I did or do, but a philosophical reflection on who I am. This fact was recognised by Jasper Bets, who after a period of three months embedded living and studying in Macha, recognised my "conscious focus on the interior of the local community (the intentions/values and local culture)" [18:135].

Previously, I deduced that "Within Ubuntu, no gender segregation is made, in the sense that *everyone exists by the grace of the other*" [20:47]. The community focus is on integration, not segregation. Relationships grow in alignment with *ubuntu* (guidance on behaviour, gleaned from an African philosophy) and diminish through behaviour that could be labelled as *kintu* (being animal-like).[133] Embedded in this context, I was able to enjoy the *communal grace*[134] that exists in the assurance of community.

It is within the security of such communal grace that I was able to assume certain roles in the community. The roles were empowered by the authority granted and, therewith, the *permission to act*. It is communal grace that allows for reciprocity. It also provides the opportunity (and agency) to engage with the community, from a delegated and empowered role. Through the ensuing process of receiving and giving, my research metamorphosed in such a way that its outcomes became an embodied part of the community. In these constituting processes, even my paradigm-bound thinking patterns changed; I gained understanding that depended on the circumstances. Observing these personal changes (the process of becoming part of the community and reflecting on the shifts from the person I *was* to the person I continue to *become*) from a meta-standpoint or 'helicopter view' has proved to be most informative in the reflexive[135] search for meaning. Therefore, my research is not primarily about collecting data through a distinct activity (a 'doing'), nor about *work* performed as part of a role (individual agency) so as to make *things happen*. It is from the vantage point of *who I am in the community* that the empirical world – described in Part II of this thesis – was observed and its underlying

[133] *Kintu* and colonialism are related, as in *ubuntu* "Acts of oppression, for instance through colonialisation, are considered inhuman. … The moment you go outside the boundaries of ubuntu, you actually begin to be labeled as an animal [by the community] 'kintu' [animal] as opposed to ubuntu." [20:42].

[134] I could not find any documentation on the concept of *communal grace*, as the literature on grace mostly talks about grace between individuals, or between a higher power (or deity) and an individual. However, here I argue its existence based on the communal behaviour I have experienced, in person, over a long period of time in (rural) Africa. The existence of this grace can be deduced from what is going to be discussed on *ubuntu* in Chapter 13 of this work.

[135] Reflexivity is a tool for linking both the internal imagination and its abstractions of the world to the entanglements of our lived perceptual experiences. Of course, such necessitate grounding in many (in this case transdisciplinary) discourses, most importantly in moral discourse [21].

patterns recognised. Of course, there was 'doing' – one has to breathe and go about one's daily life – but, in this research, the 'doing' was subject to the 'being'.[136]

When confronting what I witnessed on a day-to-day basis with preconceptions and extant theories, I recognised rich understanding in the community. This process unseats the oriental, imperial, and colonial filters that modulate outputs from academics and travellers coming from a Western-centric knowledge base (see Chapter 5). My understanding is fed by the *grace* that I receive from the community, to be allowed to *be*.[137] Being the recipient of grace transformed me (cf. Ephesians 2). Therefore, my work is a *calling*, which ultimately provides the will power and energy for *being*. This calling was, among other things, confirmed by being *allowed in* and the response to a confession of *faith*, to be able to *be*.

Due to the presence of grace, the empirical evidence reveals itself as a result of embodied observations and an endless – 24 hour a day, 7 days a week, 365 days a year – stream of narratives and experiences. The empirical evidence depends on in whose presence I am allowed to be, as a reflection of who I am. Subsequently, the empirical, and the theoretical derivatives, dawned on me as an *overwhelming* understanding of what I see. The grace is all the more remarkable as it is not necessary for the community to allow me to be part of them. As a sovereign communal agency, the community has a distinctive choice and *allows* this to happen. As a result, writing this document is not a task or prerequisite, but an honour, in response to my gratitude for being allowed the space to produce and contribute towards understanding. In that sense, this document can be seen as an integral part of the research itself, being a *community deposit* – a text not primarily written to transmit information nor gain approval, but as a reciprocal act of contribution to the community and an integral part of honouring relationships. As a reciprocal gift, it cannot be deemed to be 'owned' or copyrighted. The document is what it is, 'for what it is worth', without any claim of value, unless by independent testimony of the recipient.

[136] The 'doing' informed a number of academic publications. However, in general, reflecting on the reactions I am aware of, it seems that out of the African contexts these publications are often discarded as anecdotal *stories* without consequences. I explain this limited impact due to the clash of underlying paradigms (see Chapter 6). When one is not aware of the underlying paradigm differences, it is seems impossible to assess one's 'doing' according to the reaction of an out-of-context, distant audience [7, 22].

[137] 'Being', in this sense, consisted of my presence, which in itself allowed for my embodied 'doing'.

African Philosophy

Many interactions between Western and African views seem to be full of conflict. These conflicts are, among other things, due to different perceptions of the beginning (when the interaction started), the *reason for interaction* and the *purpose for meeting.* In my observations, the duality in cross-cultural communications – differences in what is meant to be communicated and what is actually received – is not readily acknowledged or understood. This creates rampant discord when communicating, especially with and between Africans in rural areas and foreigners [23].

Nancy Murphy and George Ellis, in their work *On the Moral Nature of the Universe* [24], describe a layering of sciences, each layer building abstraction with the input from the layer below, or by prising apart aspects of the layer(s) above. They argue for a 'Science of Ethics' spanning the social and applied sciences. Their proposed model is attractive in relation to how to deal with a mix of ethical models when working in contexts with different worldviews. Their argument strengthened my sense that human behaviour and the (theoretical) characteristics of encounters make sense only when assessed and evaluated within that social context and when utilising theory, while being conversant with the context. In the (rural) sub-Saharan African settings, the empirical evidence that I witnessed and the understandings derived within the social context are significantly different from those that I would derive if I had applied a Western schema.[138] I witnessed that what counts as a virtue (rather than a vice or morally-neutral characteristic) is determined by the scripting and meaning of the social practices and by the location of those events and narratives within the whole of the community's life story.

For a theoretical grounding, I have situated myself in Southern Africa. African philosophy frames endeavours to communicate from within the indigenous realities in Southern Africa. Munyaradzi Mawere and Tapuwa Mubaya describe African philosophy as meaning "the contextualized critical thinking, articulation of ideas, and attempts to seek solutions to problematic situations by Africans" [26:48]. African philosophy, in the sense of Mawere and Mubaya, presupposes 'plurality' and the participation of all [26:46]. It is on a par with other philosophies, as it approaches the investigation of truth from a contemplative, integrative and inclusive manner [27]. In Chapter 1, I cited Thaddeus Metz to show that an African prefix can be helpful. Munyaradzi Mawere and Tapuwa Mubaya seem to concur when they argue that "the onerous question of the existence of African

[138] In my paper on the local *Framing of 'ICT Access in Rural Africa'* [25], I worked out the variances in the sets of concepts and perspectives – frames – encapsulated in the words 'ICT access in rural Africa' and how a framing of African realities from a foreign perspective is inappropriate for conveying meaning in Africa.

philosophy has come of age. It is a question worth surrendering into abyss of oblivion not to resurface again" [26:29].

Frantz Fanon, a psychiatrist who lived from 1925 till 1961, wrote about the unconscious forces that form and shape 'the self', reflecting on his experiences in colonial Martinique, France and, especially, Algeria. These forces, he showed, emanate from a racialist society (one that holds the belief that the human species is divided into different races with different biological characteristics), which embeds the narrative of white supremacy in all forms of communication. Such forces have free range in circumstances where race is regarded as the primary distinguishing human characteristic.

Fanon used an interactive stand in his studies of practices. He described how he worked as follows:

> *I took advantage of a certain air of trust, of relaxation; in each instance I waited until my subject no longer hesitated to talk to me quite openly – that is, until he was sure that he would not offend me.* [28:128]

From Fanon, I glean an attitude of reflexivity, sensitive to the view that 'the self' is relationally formed. Fanon can be seen to further the content of what William Du Bois calls 'double consciousness' [29]. After growing up as an elite in Martinique in the Caribbean, Fanon pursued higher education and professional practice in France. There he experienced racism; he vividly describes the trauma inflicted by the continuous and demeaning categorisation of black people as inferior (or worse) by the dominant imperialistic culture. Fanon describes the colonial subject as three persons in one, responsible for one's body, race and ancestors [30:84]. He links this to the psychological dimensions of the labelling as 'black' (Negro, in his words) and its constituted political dimensions and consequences. Psychological trauma is caused by the instilling of negative pictures, which result in negative attitudes towards other 'black' persons and, in his case, towards the African motherland (Senegal). Further trauma is inflicted by the instilled desire to be like 'whites', or Europeans, and to emulate 'white culture'. Lastly, trauma is caused by being labelled 'black' without the formulation of alternatives. This trauma is caused early in a learning environment saturated by white supremacy that does not value (and actively devalues) persons of colour. The result is *psychological colonisation* through an imposed racist phenomenology.

Fanon deals with the effects of domination and the reaction of *self*. He is confronted with influences that do not emerge from the local environment, but are imposed from the outside. How should one react to such influences? He argues that the pressure asks for a

statement in kind. But is such a statement valid? Should the outside pressure be countered using the same 'language' as the original statements?

Fanon reveals a world of contradiction. He comes close and also distances himself to/from his contemporaries through dialectic interaction, trying to establish an understanding by confronting dominating narratives through reasoned argumentation. He shows how, through those interactions – with histories and with the material world, as well as ideas – the source of the matter becomes exposed. Fanon, however, rejects the idea that amendments to the local realities should come from input from outside. Such input, he argues, should be rejected. Therefore, Fanon shows that there are multiple fights taking place in the understanding of continuous change from one's own (ethnic) perspective and in the rejection of pictures of self (indirectly) imposed by the appreciation of *the white person perspective*.

Fanon highlights the vanity of the claims of being superior that are embedded in texts and rejects the claims of superiority as general influence. Or, as Homi Bhabha stated in his foreword to Fanon's book, "His stated purpose in examining (western) universalism is clear: 'I hope by analyzing it to destroy it'" [31:xvii]. This is congruent with Michael Burawoy's *kamikaze* methodological approach to theory [2:53]. Fanon, sees recurrences: all that is, already was. He shows that the exploitation and inhumane treatment are the same today as yesterday. In my study, embedded in a methodology that allows for validation through daily participatory practice, the sources of exploitation remain the same.

The theorisation of African philosophies found a productive space in the liberation movements and after the demise of settler colonialism. Most writings on African philosophies, therefore, appeared after Fanon. The conceptions of African philosophies and related ontologies, epistemologies, ethics, and metaphysics are relatively recent and contain initial propositions that leave much room for debate, exploration and contributions [34]. As my research explicitly aims to align with – and provide input to – African contexts, it is an imperative for it to be sensitive and aligned to African epistemologies, for instance to local concepts like *ubuntu*. Of course, this sensitivity and alignment is much hampered by my contradictory position as being regarded as a 'white, European person'.

Mediating the Effects of Undeserved Power and Privilege

> *Such a person is someone who gets worried on your behalf* (referring to 'foreigners' in rural areas).
>
> Respondent, Lusaka, March 2016

The issue that permeates my research and daily life in large swathes of Southern Africa is being labelled 'white'. Such labelling often takes place in response to my physical presence.[139] In order to be sensitive and effective in my research, endeavouring to witness and hear all and sundry, I found it crucial to actively mediate the effects of my undeserved privileges and powers, which accrue to me due to my countenance, pre-existing ideas and concepts in communities, as well as my links to Western academia and professional institutes. It took me many years of contemplation and conscious effort to gain some understanding of the pervasive and debilitating effects of this situation. In research environments, undeserved privilege and power can constitute epistemic violence[140] and it constantly threatened to affect my ability to become privy to embedded understanding in rural African communities.

Michael Burawoy considers the 'field entry' as the most significant moment of any study. In my experience, at most entry points, my countenance primes people to react to the labels customarily attached to a white, middle-aged European person. This situation leaves me instantly stigmatised, vulnerable and uncomfortable. Subsequently, an entry can turn into a harmful event, potentially taking away the prospect of gaining a meaningful contextual understanding. However, there is little that can be done but to engage over the long-term at a deep, personal level and emanate embodied contributions to counter the powerful racist and colonial systems that dish out 'perks', while also creating obstacles. In my experience, it can take years before the entry phase can be regarded as passed, and one can participate and collaborate on something useful.[141]

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[139] A whole range of responses evidence this labelling as a 'foreigner', for instance, the questions 'where are you from?', and 'when will you go back?'.

[140] The authoritarianism of a Western epistemology and dominant philosophies all point back to Western men. Grosfoguel argues this equals epistemic racism [32], which aligns with Foucault's 'epistemic violence'. As with all other forms of racism, epistemic racism gives (often unconsciously) a supremacist world many benefits. However, increased antagonism and the subsequent calls for the de-colonialisation of systems, among them academic institutes, reveals that all is not well [34]. However, discussions of social justice are full of objectifying statements. Of course, there is a myriad of power issues at play. Unfortunately, being a physical presence in areas unaccustomed to the long-term presence of someone born in Europe, and even less accustomed to such a person having the desire to assimilate and 'be together', one encounters situations that need mediation on a frequent basis (possibly many times a day).

[141] My first efforts to suggest some structure came after six years in the field. The first academic abstracted or conceptualised derivatives from my efforts were only ready for publication after almost 10 years in the field. In hindsight, I doubt if I could have drafted my thoughts any faster. My insights were shared by a leader of a development organisation, a European, who had lived in mid-Africa for over 10 years. In mid-2016, he told me "the first 10 years [in a country in Eastern Africa], I talked too much. I was just naïve and therefore I was 'being played'. Only when I started to listen first, and avoided to speak, I started to learn what was taking place".

Burawoy [2:56–61] saliently observed that reflexive research addresses context in a direct manner. He also recognised its hiatus: the effects of power. Although Burawoy introduces and structures the power effects in reflective research, he does not make any suggestions for how to counter them. The issues related to power wielding are a daily reality and omnipresent in contemporary rapacious colonialism. Therefore, the examination and mediation of their effects need fervent attention in any research. Subsequently, the presence and mediation of power – whether attributed or effected – and its enabling and weakening agency, is a never-ending task. Its continuous mediation is possibly the most pregnant subject of implicit and explicit discussion with community members during my participatory encounters.

From my experiences in trying to mediate undeserved privilege and power, I deduced a framework, which I have implemented in this study. Here, I present the framework under the four power positions proposed by Burawoy: domination, silencing, objectification and normalisation. Burawoy saw the prominence of such power effects as directly related to performing science in dialogues. When confronting academic theory with positioned, indigenous narratives, one addresses regimes of power [2:7]. Burawoy saw his extended case study method being threatened by these power effects and, therefore, called for researchers to be sensitive to their effects and perhaps even reduce them [2:22]. Adopting this schema, and reflecting on encounters in the community, I have heeded to Burawoy's warning and constructed my countering of such power positions using tools such as time, silence, involvement and representation or distance from power.

Domination: Mediated by being inert

Burawoy argues that domination deals with the effects of prolonged and surreptitious power struggles [2:22]. In my book chapter: *Ubuntu, Peace and Women: Without a Mother, There is no Home* [20], I introduce such effects, utilising Johan Galtung's centre-periphery schema [35]. Galtung introduced a perspective involving a world where geographical 'Centres' exercise imperial control over geographical 'Peripheries'. To this effect, Galtung argued, a centre in Centre-countries entertains harmonies of interest with centres in Periphery-countries to extract resources, mainly from the so-called periphery-of-the-Periphery (pP) for the benefit of the centre-of-the-Centre (cC). In the previously mentioned book chapter, I extend this schema one level deeper, recognising the existence of power distances between a centre-of-the-periphery-of-the-Periphery (cpP) and a periphery-of-the-periphery-of-the-Periphery (ppP) that reify the imperial domination that Galtung recognised. As rural areas in Africa can be regarded as falling into the periphery-of-the-Periphery category, in such a setting, of course, the perceptions

and interpretations of my presence[142] are being used continuously by both sides of the imperial divide for their own agendas. For instance, since the entry of missionaries to Africa, there have been real power struggles between 'the Mission' and traditional authorities; between 'the Mission' and missionary and non-missionary foreigners; and between 'the Mission' and many others. In these prolonged power struggles, my presence is labelled in many ways and moulded according to the situation and political need. My 'whiteness', 'Christian-ness', resource relationships, and gateway functions, among others, are all considered potentially-useful attributes in the direct and indirect power struggles in the communities in which I participate.

In this research, my mediation of this power effect is mainly done by *being inert*. I timed activities according to explicit needs. 'Waiting' is a very important part of this. By *not acting* during times of conflict or when directly asked, I used 'letting go' to diminish my undeserved, projected or assumed power so that *local talent* could step in to manage the situation. If nobody stepped in, I would still refrain from acting and let the situation go anyway it would. I considered the cost of wielding power to address power struggles or *acting* in any individualised agency[143] to be more costly than *leaving space* for local talent to act. This, of course, consumes time: a situation might potentially necessitate many years of inertness. However, I consider the mediation of domination, whether real or projected, an integral part of community engagement. Research must align with the timings in the community and not with the demands of research planning.

By staying inert, I endeavour to *be* a counter-person, acting in an opposite spirit, searching for virtues, and cognisant of the history of domination and exploitation. In this way I address the distrust instilled by long periods of domination by those who countenance appears similar to mine.

[142] The labelling of my presence depended on 'which table' I was considered to be seated at. From my countenance and affiliations, these could be in the centre-of-the-centre (cC), centre-of-the-periphery (cP), centre-of-the-periphery-of-the-periphery (cpP), but hardly at the periphery-of-the-periphery-of-the-periphery (ppP). The labelling links me to the political agency of each of the settings [cf. 37].

[143] In an effort to understand as much as possible, I endeavour to assimilate with the environment, trying to diminish the effects of cultural misalignment. I found this especially prudent, due to the fact that dominant cultures seem to cast an omnipresent gaze. As a researcher I am a migrant. Thus, my ability to learn depends on the interaction of how I *value* the foreign and local cultures under study. John Berry [38] shows that when one devalues both the foreign and local cultures, the effect is *marginalisation*. When one values the foreign over the local, it leads to *separation*. When one values both cultures, the outcome can be *integration.* When one values the local over the foreign, *assimilation* is the effect.

Silencing: Mediated by refraining from speaking

By silencing, Burawoy refers to the ruling ideology in the interest of the dominant classes. I recognise this power effect in the power vested in *he/she who speaks* and the implicit or explicit location of where the person speaks. To mediate my undeserved privilege and power, when asked to speak, I would endeavour to refrain from speaking. In that manner, I would try not to influence ongoing social processes, even in situations where my presence was the subject matter. When morally just, I would *do* what was requested, even when it made little sense to me.

A second aspect of silencing is through the voicing of statements in the community that had only been tested in other communities. In mediating, I would be sensitive to the position of my physical body, e.g., endeavour to sit at the back of the church[144] and try to sit in between and among community members in meetings, sensitive to any aspect of the seating arrangements. At any time, I would be very careful not to speak first, or speak at all, unless explicitly invited to and as part of a publicly-agreed pre-set (inclusive) agenda. To bite one's tongue is crucial so as to avoid this power effect taking shape.

Objectivation: Mediated by focusing on oral means of collecting data over a long time

Burawoy sees the hypostatising of social forces as being *external* [145] and *natural* as an inherent power effect. I observed this power effect to be highly connected to the practice of *writing*. Textualisation, especially in the English language, deconstructs our complex reality in a linear, abstract way. Therefore, I played down the value of textualisation and focused on the oral means of collecting, processing and representing social forces (see Chapter 3).

Secondly, objectification was countered by extending the temporal and spatial reach of the study. Explicitly, 'time' was invested lavishly[146] and 'space' was extended to all parts of the world.[147] Further, in true reflexive fashion, none of the presentations of *outcomes*

[144] Church attendance in the Macha environment represents the cultural introduction of a person to the community. Often, foreigners would be requested, or expected, to sit in front. The community 'elite' sit at the front and leave the church first, for all to witness.

[145] This externalisation is aligned with Orientalism, as studied by Edward Said [38]. In her 2016 Said lecture, Naomi Klein gives many examples of how 'othering' sustains predatory behaviour [39]. More on Orientalism in Chapter 5.

[146] The temporal period of this study could be seen to have started with my first encounters in rural Africa (Swaziland) in 1987, or even before that in my teens when I wondered about African realities. Certainly, this study does not end with this document; it will continue, maybe up to the moment I breathe my last breath.

[147] An example of expanding the geography of the study is the inclusion of community inputs and members in presentations worldwide; for instance, Fred Mweetwa at the South by South West conference and making online published presentations at, for example, the meeting of

were done in a *de facto* sense, claiming *certainty* or *fixed outcomes*, but results were established in a dialogue with comments by local, national and international interlocutors.

Normalisation: Mediated by using a transdisciplinary approach

The effects of normalisation – the reduction of the world to categories – I countered by using a transdisciplinary approach to reality from the start. Explicitly, I refrained from judging activities, the validity of inputs, or mediated participation, from whatever source. I attempted to exercise humility by elevating, or counting, others above myself. Similarly, I regarded no discipline or particular school of thought – whether in the humanities or natural sciences – as more valuable than any other. Any contribution from any source was solicited and incorporated as valuable input, for whatever it was worth.

In the dissemination of knowledge, in an effort to circumvent implicit normalisation effects, I consciously opted for an alphabetical listing of authors in the publications in which I participated. Authorship listing involves a power tussle over who will be the 'first author' – for instance, the listing implicitly or explicitly gives information on 'who is most important' (first author) or who is supervisor (last author) in medical research – so it is difficult to recognise the authority of those in publications from Africa. The conscious yielding of one's potential privileges and power, in this case through the alphabetic listing of authorship, takes away this normalising power struggle among authors.

An important power issue that affects normalisation is the issue of *who to address*. As stated before, the aim of this research is to contribute to meaning-making that is relevant, first, for an African local context, then for the wider African context and then for the (global) international context. Of course, this is a tall order and necessitates alignment with the various contexts, framings and even worldviews. Undoubtedly, this effort will fall short of its aim. However, an explicit search for frame-bridging and a meta-paradigm, that takes serious note of any perspective and explicitly tries to make serious efforts to unearth knowledge from any setting, is part of the effort to diminish undeserved privileges and power – in other word, to normalise.

A Three-Step Methodology

Like Burawoy and other scientists, through this research, I seek the growth of knowledge. However, I do not distance myself intellectually from the lived-realm to seek objectivity,

Ministers at the Commonwealth Telecommunications Organisation conferences in the United Kingdom and Kenya.

as Burawoy did.[148] I endeavour to become part and parcel of the environment, in line with the 'Theory of Presence', as formulated by Andries Baart [42]. In Baart's approach, the practitioner does not seek to apply theory-driven diagnoses and pre-set methodologies, but endeavours non-interventionistically and through non-scripted engagement to seek moral deliberation and value-based iteration through ongoing interactions. In a similar manner, I endeavour to integrate and assimilate, by continuous disclosure in an ongoing conversation with all-and-sundry and seek the reciprocity that keeps community life vibrant. The receiving entities of my reciprocal giving thus became important validators, embedders and the embodiment of my efforts, as I become theirs. In this way, knowledge becomes a contribution and seeks embodiment beyond my person alone. At the same time, this implies that text – like this one – cannot be regarded a full deposit of knowledge, but more a report on communally-held knowledge, of which, by explicit agreement, I am now a representative.

What follows is an expansion of how this research is structured as a three-step methodology based on the extended case study method. This three-step methodology consists of: community engagement, workforce development and thought leadership.

Community engagement

Community engagement necessitates "an environment with shared values, a common purpose, and sufficient levels of cross-cultural skills. Cross-cultural community engagement operates in a situation flush with paradoxes. These paradoxes need careful reconciliation" [4:np]. This is aligned with Lilly Irani *et al.* [43], who call for the reconsideration of enshrined practices of engagement in technology design.

At this stage of the extended case method, I endeavour to gather a tacit understanding of the many histories, power relations, and epistemologies in play. This involves inputs from different stakeholders [6]. Engagement involves, among other things, the adoption of a holistic approach, a focus on local empowerment, the seeking of reciprocity, and a healthy dose of enthusiasm [4]. The intended outcome is to gather authoritative and embodied knowledge, *in situ*.

Again, in view of my disclosure of being an academic observer, I acknowledge all those who took part in the conversation as participants in my study; any encounter is "an intentional, motivated, and power-laden act" [43:1318]. I used any encounter between

[148] Michael Burawoy critiques the distance provided for by interrogating the world through intermediaries like surveys. He regards such *positive* approach seeking positivist objectivity as fundamentally flawed. However, Burawoy aligns with the merits of the rationality of theory, citing Micheal Polanyi [41]. He regards rooting in theory as a viable source of objectivity. Such rooting creates an intellectual distance for the platform of preexisting theory (even while one is seeking to destroy it) [2:5].

myself and any other – whether stakeholders or anybody in a vicinity[149] – to engage in conversation. This type of conversation is not necessarily structured, although it is more or less naturally human that I share 'where I am at', and thus gain information that can contribute to the research. However, it is not the extraction of information that makes the encounter valuable. The information is contained in the assessment of the context and the barriers that have to be overcome for the encounter to take place at all! All aspects of the encounter carry information: its location, the time of day, who I encounter and who I do not encounter, what is being spoken about, the permission to speak about something, and the restrictions encountered in speaking about subjects. It is as much *about the conversation*, the reason and circumstance affecting *why it takes place*, and what authorities are involved (or not involved), who takes part in the encounter, what it brings to all parties involved and how that exchange is valued differently by different people, including me, that is of interest and informs the study. Thus, it is not necessarily the content of the conversation during the encounter (which, in view of the power influences mentioned above, can be highly scripted) that is important. The sheer occurrence of an encounter, a moment of engagement, is already remarkable, especially knowing the history and constraints of the setting.

There is, of course, a balance to be struck between planning encounters and going with the flow. When encounters are over-planned, in what Nicola Bidwell *et al.* [44] call 'timely relations', the encounter can be conceived as having been manipulated. Here, again, power issues come to the fore. When one uses *power* and script, the research can be judged as manipulative. However, when one is endowed with *just authority*, it is a responsibility to engage. Thus, it is very important to be sensitive to the authority vested in oneself and, in order to gain communal authority, the rituals involved must be adhered to.

Workforce development

The process of workforce development is undertaken, again, through bodily presence. Workforce development involves a pedagogic process [45]. In such process, everything depends on ontological understanding to know who to interact with for the testing and dissemination of concepts. In practice, this is done in formal presentation settings, upon invitation by – or confirmed by – the local authority. The message is structured in line with the local culture, subject to local authority and thematic and culturally aligned with the audience. Here, articulations are fully localised, contextual and specific to that time and place, setting, and authority structure (see Chapter 3). Also, to achieve workforce development, all forms of communication, both informal and formal, should be balanced. In that respect, this document is an example of one of those aspects: formal articulation.

[149] This vicinity can also include cyberspace.

In the African contexts I studied, this is all considered the performance and dissemination of embodied knowledge. It is committed knowledge and affects the political and economic realms in further embodied renderings, with the message amended according to time and place [23, 46].

Thought leadership

In the last step of the transformation of information into shared and embodied knowledge, local leadership confirms and approves the knowledge for dissemination. Through such empowerment, the *local talent* is free to further disseminate the knowledge. From a research point of view, when this happens, I recognise that the knowledge has value, has been embodied and anybody can *run with it*. Further signs of thought leadership include the formulation of knowledge in the local language or at nationally-approved meeting places (for example, international conferences). This is proof of the value and potential of the knowledge. And, thus, for me, it is proof of its *worth* and existence – it is being talked about (for example, see keynote addresses in the course of this research, Appendix IV). Of course, while it is being carried, it will change form and, thus, although it might seem altered in a positivistic framing, it stays *whole* in an oral manner. When I recognise such outcomes, I start writing, because then this science has performed as it is supposed to.

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Chapter 5

The Terrible Three: Orientalism, Imperialism, and Colonialism

Contents

There are forms of colonization that are going on in the world today which are new, not only in the sense of having begun in the recent past, but also in that they differ in some ways from the 'old' or classic forms of colonization that characterised Africa and world history from the 16th to the half of the 20th centuries.

Father Thomas Michel SJ [1:np]

Introduction

The inquiry as introduced in Chapter 2 addresses 'the relationships of African technology practitioners with foreigners' within a framing of colonialism. Specifically, the research questions demand for sensitivity about contemporary relationships affected by colonialism. In the preceding chapters, I introduced and explained my understanding of the context that influences research in an African place. The text presents deductions from reflections on my observations – and their (non-)alignment with the extant literature. In this Chapter, I build upon the understandings presented up to now and develop a theoretical framework, which I use to create a sensitivity and the framing for addressing the research questions.

I developed this chapter in an effort to balance my learnings from the literature review with the knowledge I gained from interacting within communities of practice. Through this, I have endeavoured to see if proposed concepts are usable in African environments. I argue that, by using the 'power-of-the-pen', even definitions and understandings of ideologies like Orientalism, imperialism and colonialism are framed by labels in writing cultures. However, it should be kept in mind that written texts – like this one – are merely intermediaries or translations of realities [2] that "reify knowledge, disembody voices and neglect the rhythms of life" [3:51]. Definitions depend on one's position in space and time. For example, the sensitivity to – and an understanding of – the effects of colonialism, as asked for in the research questions, depends on one's perspective: in this case as the perpetrator or the victim, as I will show in this chapter. This is a potent reason for why the concepts need to be explored *in situ*.

Sensitised by continuous reflection on phenomena witnessed in African societies, whether in Macha or in other communities, I experienced the linking in of my ('white') constitution with an hegemonic worldsystem. In the clash of worldsystems – and philosophies – I recognise the influence of behaviour when applying the lenses of orientalism, imperialism, and colonialism. This triad I label as 'the Terrible Three'. I found a framework informed by the Terrible Three useful in gaining an understanding of the clash between African based worldviews and dominant narratives. In my research,

such a framework provided sensitivity to the mechanisms of exclusion, of 'othered' worldviews, and behaviour with respect to dominating views in world systems.

The systems of orientalism, imperialism and colonialism are difficult to handle. I experienced many a person who refused to acknowledge their existence and the structural exclusion they facilitate in contemporary times. My experience is an analogy to Reni Eddo-Lodge [4] who, from her London based position, reports on a majority who refuses to accept the existence of structural racism and its symptoms. While interacting on the Terrible Three, I am often confronted with awkwardness, resistance, and mostly denial, especially in centres of power. Therefore, to understand the veracity of the concepts, I found it important to review the Terrible Three in terms of how they play out in the contemporary, African places I live in as well as in my interactions in the West, in other words: to study 'in situ'. Experiencing the credibility and effects of the concepts encapsulated by the Terrible Three *in situ* proved crucial to gaining a structural sensitivity and theoretical framework with which to recognise and assess narratives, idioms, and meanings at the nodes of interactions between technology practitioners in African contexts and their relationship with foreigners, as I aim for in this research.

Embedded Orientalism

My recent work, *Unveiling Orientalism in Foreign Narratives for Engineering for Development that Target Africa*, examines the labelling 'for development' (which is shortened to '4D' when in ICT4D) [5]. In that work I endeavoured to shed light on how an orientalist outlook fuels 'othering', which the suffix 'for development' masks.

First, let us look at what Orientalism is and where it came from. Orientalism emerged in Europe in the 1700s as a description of 'European knowledge of the Orient', which was understood as Asia, the Middle East and North Africa. Named after the Orient, where the term first emerged, Orientalism became the academic approach to the study of Africa (and other non-Western places). Edward Said, a key scholar in Orientalism, defined the term as the "disregarding, essentialising, denuding [of] the humanity of another culture, people or geographical region" [6:108]. Studies influenced by Orientalism approach realities and 'meaning making' from a Eurocentric position, contrasting views that assume European universalism with 'other' views.

Theories set in Orientalism distinguish geographic, cultural and religious particularities to essentialise humans and regard *differences* as drivers of inequalities, all from Western viewpoints. Such an exclusionary approach continues to produce dehumanising narratives up to the present time, implicitly based on the idea that worthwhile knowledge comes only from the West. For example, contemporary discourse on development seems

to regard it as necessarily guided from outside Africa. In these narratives, definitions, labels, and terminologies spring from Western thought, often, propagating Marxist conceptions of class, natural sciences aligned with the Newtonian order, and Cartesian notions of knowledge.

European universalism drives the labelling of Africa as 'underdeveloped' or poor [7, 8]. Development narratives are full of descriptions of what 'Africa lacks' and are a rationale for the West to provide 'appropriate solutions'. Such solutions invariably involve research done using Western methods under 'guidance' by so-called 'technical assistants', who fly into Africa from the West of course [5].

Orientalism is oblivious to its myopic outlook, and its self-centeredness builds only its own capacity. Any evaluation within the harbingers of Orientalism does not necessarily critique its own definitions, lexicons, or the historicity of its position of privilege. Therefore, Orientalism sustains what is considered *legitimate discourse* with its particular logics. The overtly Eurocentric academic publication apparatus [9] represents such a coercive force, which subjects claims of knowledge to its Eurocentric, and often orientalist, vetting.

Orientalism is helped by an education system that prioritises Western knowledge, formulated by Western academics, also in Africa. However, evidence shows that such knowledge is short-sighted. For instance, using historic economic analysis, Ralph Austen [10] showed how major interpretive trends – based in Western thought – are unable to explain the reasons for, and practice of, economic action and change (including its organisation and handling of conflicts) in Africa (the subject of Chapter 17).

Pervasive Imperialism

In a sense, the countries of the South have subsidized today's globalized economy for the past 500 years, at great expense to their own cultures, their land and their economies. The current dominance of the western industrial model could never have arisen without prolonged access to the South's raw materials, labor (including slave labor), and markets.

Helena Norberg-Hodge [11:100]

Imperialism influences and permeates everyday life in Africa. However, it goes largely unnoticed in other places. Imperialism facilitates the unrestrained need for resources for *prosperity* and *democracy* in countries in the West. Imperialism is sustained by the garrisoning of the planet.

From a perspective situated in the so-called 'periphery', imperialism is embedded in the intricacies of society through the institutions that were introduced in colonial times. When understood in this way, the ongoing practice of imperialism becomes apparent in the daily bureaucratic and administrative practices of institutions established for religion, agriculture, health and education, especially in the rural areas of many parts of Africa. Further, imperialism is apparent in contemporary structures of technical governance, where voices from non-Western countries remain *de facto* disempowered .

The imperium thinks of itself as God's gift to the world, writes Artwell Nhemachena [12]. This conceited position, combined with the geo-political powers vested in the West, has resulted in the dehumanisation of 'the other' in, what Johan Galtung [13] calls, 'periphery countries'. The depiction of an African cosmology as 'animism' is an example of such dehumanisation. Naomi Klein [14] shows that even in the contemporary discourse on global warming imperialism is rife. Dissecting that discourse, she debunks the implicit narratives of European (white) supremacy and patriarchy [5:207].

In the book chapter entitled: *Ubuntu, Peace, and Women: Without a Mother, there is no Home* [15], I adopted Johan Galtung's Theory of Imperialism [12] and extended it to describe how imperialistic practices continue to permeate rural Africa. The division of the world into 'centre-countries' and 'periphery-countries' is generally used to explain how people in 'centre-countries' enjoy prosperity while populations in 'periphery-countries' are ignored. The 'centre-countries', which have the majority of the world's income, are mostly in Europe, North America and those places that harbour the majority of the capitalist elite [13], with 'periphery-countries' being countries in the rest of the world, including African countries. Galtung [14] shows that within countries, this centre-periphery divide reproduces into a centre and periphery divide inside a centre-country, and a centre and periphery divide inside a periphery-country. Applying this model here, if the centre was determined to be the United Kingdom, the centre-of-the-centre would be London, the periphery-of-the-centre would be Scotland (or Ireland or Wales), the centre-of-the-periphery-of-the-centre would be Glasgow, and so on. I argue that Galtung's centre country-periphery country model shows how an externally-imposed leadership continues colonial strictures, which are being reproduced in the periphery through coloniality. Enshrined political and economic control, institutionalised in the systems and structures set up during colonial times, continue to support domination and the reproduction of Galtung's model also inside the periphery-of-the-periphery countries. Leadership in centres-in-the-periphery-of-the-periphery country operate using imperialistic management processes, in a culture unaligned with the culture of the communities they are supposed to serve [15:44–45]. However, there is no reproduction of harmony-of-interest between this centre-in-the-periphery-of-the-periphery with the centre-of-the-periphery, unlike the existing harmony of interest between the centre-of-

the-periphery and the centre-of-the-centre. Therefore, leadership in the centre-in-the-periphery-of-the-periphery appear to be trapped and is prone to be set firmly in its coloniality and imperialistic behaviour.

Orientalism, which separates 'us' from 'them', gives rise to imperialism, which brings 'our ways' to 'them'. It is just a small step to bring to fore the geo-political and military powers and claim 'what is theirs' as 'ours' – which I recognise as full-blown colonialism.

Ongoing Colonialism

Colonialism, and the practice of colonisation, is conventionally understood in academic circles as the policy or practice of acquiring either full or partial political control over another country through the establishment of settlements in it, while exploiting it economically. Or, as Nelson Maldonado-Torres puts it: "Colonialism denotes a political and economic relation in which the sovereignty of a nation or a people rests on the power of another nation, which makes such a nation an empire" [16:243].

In colonialism, the domination of land, people, and thought are exercised by a non-indigenous power. Colonialism results in the creation of what is known as 'colonies', being the countries or geographical areas controlled by the colonisers. Colonialism introduces overlaying institutions, which embed colonial thought patterns in the systems that order public life [17]. As a result, in many countries affected by colonialism, there exists a near-total psychological, physical and financial dependency on the state [18].

It is said that colonialism stopped when the last settlers packed their bags and the former colonies hoisted their national state flags, in other words, when colonised countries gained independence. Even in contemporary colonies, like Puerto Rico, the narrative insists that "the last vestiges of colonialism" have disappeared [19]. However, many people I met outside the West testify that the oppression by the West of the 'Rest' is real. Plunder, pillage, and expatriation continue unabated (as we will see in Chapter 13).

The continuation of dominating practices, remnants of a colonialism that is said to have expired, is the subject of post-colonial studies. Post-colonialism is understood as the use of power relationships and mutual dependencies created by a colonialism of the past to continue to exploit former colonies [20]. The academic discourse studying these effects 'post-colonially' talks about the contemporary human consequences of external political control and the economic exploitation of indigenous peoples and their lands. It seeks to critically question and address, in varying ways, the injustices planted by the hegemonic process of historical colonialism.

The continuous influence of former colonial powers in the countries they controlled is called 'neo-colonialism'. Neo-colonialism refers to a situation where the dominance of a former colonial country is reproduced by contemporary means. A particular form of neo-colonialism is 'modo-colonialism' [21]. In modo-colonialism, France (the former coloniser) is given priority in public procurement, military action, financial planning, and the use of monetary instruments in West African countries such as Burkina Faso and Senegal. This priority is ensured through agreements set since 'independence'.

Definitions of Colonialism

Contemporary and normative views and definitions of colonialism are framed from a Western epistemic position, which regards the wars of independence and the handing over of power as the end of the colonial project and colonialism. Although, at independence many realities did indeed change, the authoritarianism of the Western epistemology and its dominant philosophies have, in effect, left other realities unabated. For example, when Cecil Rhodes emanated the imperial message 'this land is mine' and brought leadership under his control, many colonial realities in Southern Africa were created – and many of these realities continue to exist.

In 1974, Michael Burawoy, possibly sensitised by his Zambian experiences, struggled with the definitions of colonialism in his time [22]. Did colonialism and colonisation actually end when the colonialists 'packed their bags'? The empirical evidence indicates that coloniality and colonial practices have continued to power oppression in Africa, which is felt daily by those living in former colonies. Nelson Maldonado-Torres states that "coloniality refers to long-standing patterns of power that emerged as a result of colonialism, but that define culture, labour, intersubjective relations, and knowledge production well beyond the strict limits of colonial administrations" [23:243], a definition echoed in the works of Sabelo Ndlovu-Gatsheni [24, 25]. Ramón Grosfoguel argues that "Coloniality and modernity constitute two sides of a single coin. The same way as the European industrial revolution was achieved on the shoulders of the coerced forms of labour in the periphery, the new identities, rights, laws, and institutions of modernity such as nation-states, citizenship and democracy were formed in a process of colonial interaction with, and domination/exploitation of, non-Western people" [26:np]. Should it not be the oppressed who declare the end of colonialism? Does the hunt stop when the hunter says the hunt is 'over', or only when those hunted feel safe (a symbolic narrative taken up in Chapter 12)? Is the word of a hunter who claims to have stopped hunting of any value if in practice he/she is always on the look out to capture more resource and seize the game?

As shown, the word 'colonialism' does link into a particular positionality and framing of thought. In this thinking, it is natural that prefixes like post-, neo- and modo- might be appended to the word colonialism so as to depict new or emerging practices linked to the *remnants* of colonialism, based on the assumption that colonisation, and the colonial era, have ended. In that sense, even the definition of concepts such as coloniality and decolonisation are prone to be understood in the reflection of this extant positionality of thought.

From my long-term and continuous interactions with people in (rural) Africa (since 1987), I recognise a different understanding of colonialism. This understanding is not in line with conventional definitions. Hence, I argue that the meaning of colonialism depends on the context and positionality of those interacting with the notion. The presence of a different understanding is apparent from the question posed by esteemed African authors Munyaradzi Mawere and Artwell Nhemachena who ask "whether the decolonizing process that is purported to have started in the 1960s has been [sic] taken place honestly and in earnest" [27:3].

Gaining an understanding of the multiple views of colonialism is crucial for any attempt to address decolonisation, because, as Samia Hehrez [28] argues, in a complete decolonisation process both the colonised and colonising societies must be included. For the colonisers, decolonisation entails liberation from the hegemonic system of thought and from "imperialist, racist perceptions, representations, and institutions" [29:255].

From an African positionality, extant literature harbours many influential concepts, including post-colonialism and neo-colonialism. Post-colonial theories show meaning through a conceptual reorientation from different situational perspectives – for example, from the perspective of marginalised groups of people – of the same pieces of knowledge, as well as alternative interpretations of needs developed outside the West. Post-colonialism is positioned as an analysis, explanation, and response to the cultural, social and political legacies of colonialism [29]. In this concept, colonialism is understood from a Western perspective to be the result of a history of mercantile trade and plunder, including slavery (from the 1500s), integration into world capitalism (since 1800), and colonies and investments (in the early 1900s). After the two world wars, the 'third world' was invented by an oriental academic caucus and the patronising word 'development' was introduced. Since the so-called 'end of colonialism', formal freedom has been declared.

Within the academic discourse on post-colonialism, there is acknowledgement of the continuity of inequality and dependencies. From this acknowledgment, theories are actively pursued to develop a set of principles and perspectives. Post-colonial studies

seek to intervene, to force their alternative pieces of knowledge into the power structures of the West (and the non-west) and to change the ways in which people think and behave, to produce a more just and equitable relationship between the different peoples of the world. Post-colonialism seeks to espouse the value of the so-called subaltern[150] cultures and pieces of knowledge, which have historically been considered of little value in academia and centres of powers, but which it regards as rich repositories of culture and counter-knowledge.

Still, from reading post-colonial literature, I deduce a dominant perspective that regards colonialism to be an issue of the past and that believes that colonies are mostly gone. While post-colonialism recognises there are still *echoes of colonialism* around, as structures put in place during colonial times are still in use, it projects an agency on the *previously colonised* countries to set their own pace and direction in a post-colonial era. In my reading of the discourse in post-colonialism, it seeks to talk about the human consequences of the external political control and economic exploitation of indigenous peoples and their land. It aims to critically question and address, in varying ways, the injustices planted by the hegemonic process of colonialism. As such, only *neo-colonialism* is regarded as remaining, embedded in a perspective that colonialism did end and colonised countries graduated to become post-colonial states.

While contemplating how imperialistic systems continue up to this day, I have studied how Orientalism, imperialism, and colonialism appear to be intertwined. With Orientalism and imperialism continuing, I hypothesise, colonialism can be expected to continue as well. However, if colonialism is denied, how can it be recognised in current practice?

Margaret Kohn defines colonialism as more generic, as "a practice of domination, which involves the subjugation of one people to another" [33]. This definition talks of 'people', instead of 'nations', although Kohn might not have thought of people outside of the Westphalia framework. When regarding Orientalism, imperialism, and colonialism as

[150] El Habib Louai [30], from his work in the Indian setting, recognises the subaltern as a class and defines them, reflecting on Antonio Gramsci's [31] words, as "any 'low rank' person or group of people in a particular society suffering under hegemonic domination of a ruling elite class that denies them the basic rights of participation in the making of local history and culture as active individuals of the same nation" [30:5]. The Indian Gayatri Chakravorty Spivak, in her seminal writing "Can the Subaltern Speak?" [32], shows why the subaltern are obscured from the elite: they are lost in the academic, economic, social, and so on, infrastructures of colonial production of the subaltern social acts in ways that reinscribe, co-opt, and rehearse Western-centric narratives that imbricate with (mis)representation, domination, exploitation and, subsequently, erasure of the other. As in this study, I focus on learning from the voices around me, I avoid these annotations as I regard them to communicate to Western positionalities.

closely related and more or less sequential, the continuation of colonialism becomes palpable. When you consider that Orientalism *defines* the other, that imperialism seeks to *engage* with the other (through trade), and that colonialism is the violent *subjugation* of the other, colonialism can be readily seen as expressed in current times.

In the assessment of the terms 'Orientalism', 'imperialism' and 'colonialism', it appears that definitions are generally set by Western thinkers and taken over by African authors. In general, literature breathes a sigh of relief that (criminal) colonialism is over. Artwell Nhemachena [13], however, consistently puts the prefix 'neo' in 'neo-colonialism' in brackets, to my mind indicating the existence of two perspectives: 'neo-colonialism' from the Western one and 'colonialism' from the African one. In this way, Nhemachena tries to bridge the understanding of colonialism, from the positionality of the reader. The existence of a morphing of an (ongoing) colonialism can be deduced from Mawere and Nhemachena's writing, which states that "neocolonialism [is] another form of colonialism which is possibly worse than the one that Africa experienced in the 19th century" [27:3].

The main narrative describes how African nations – their demarcations themselves a colonial contract set outside of Africa after the Westphalia accords in Northern Europe – were declared sovereign and colonies ceased to exist. However, I concur with Sobela Ndlovu-Gatsheni that colonialism has not ended. Ndlovu-Gatsheni [17] argues that Africa political independence – and, therefore, meaningful sovereignty – was compromised by an enduring colonialism, through a reformed Euro-American empire and coloniality. In *Pillage, Plunder and Migration in Africa: On the Expatriation of Riches and Remittances*, (on which Chapter 13 is also based) Munyaradzi Mawere and I wrote recently: "Possibly, [colonialism] had a hiccup directly after 'independence'. However, in our view, this was just a time of 'resetting', where all parties had to get 'around' the new hurdles" [34:59].

Artwell Nhemachena, among many others, notes that "theorists were careful to emphasise textual, cultural, political and social deconstruction in the peripheries, to the virtual exclusion of deconstructing economies. After independence in many post-colonies, economies remained in western hands …" [12:29]. Although the manifestations of colonialism might have changed form, in practice little has changed, with the elites in control and the expatriation of the spoils for the benefit of those outside the continent.

An African Expression of Colonialism

It seems that there has been little exploration of the concept of colonialism, beyond mimicry of Western notions of colonialism, especially by Western-dominated academia [35, 36]. Of course, the ongoing regurgitation of the same message drowns out any discordant views. The indoctrination perpetuates coloniality and, therefore, continues to

realise and sustain the ongoing practice of subjugation [37]. The new prefixes (post-, neo-, modo-) could be regarded as allowing 'a new start' for the ongoing subjugation of those who were colonised, confusing and, therefore, pacifying the victims of this practice, linking their claims of ongoing colonial oppression to the past without acknowledging it in the present. Therefore, questioning the understanding of colonialism outside of the mainstream is opportune, as the false construction and misrepresentation of Africa and African people, linked in with an extant definition of colonialism, continues to be used by non-Africans and Africans alike [38].

The term 'colonialism' is tainted by many different understandings, which vary according to one's state of decolonisation (in itself another word with a highly-convoluted meaning). However, when colonialism (and its 'successors', neo- and post-colonialism) are constructs provided by the West, what are African understandings of the colonial practices that have resulted in dispossession, enslavement, and exploitation?

In researching the narratives on colonialism, on many occasions during my research I was told stories about how African ancestors have dealt with oppression since the time of slavery [cf. 38]. Delving into their memories, interlocutors in Africa have related how family members were taken away to faraway lands, about white people arriving on horseback claiming "this land is mine" [39], and about day-to-day struggles to survive ever since. Subsequently, I was told stories about the constraints on behaviour, with rules and regulations set by outsiders – powers in far-away places, during every day interactions in Macha and beyond. Given what I heard and experienced, the dominant academic definitions of colonialism appear remote and the relegation to historical practice incomplete. Content informed by epistemologies located in Africa is missing.

While interacting to theorise upon what I was told during ongoing conversations in Africa, a community member in Macha explained that colonialism, in an African epistemology, can be depicted as a three-step process of: condemnation, brainwashing and conditionality.

This process is reiterating, constituting, and circular, as can be seen in Figure 1.

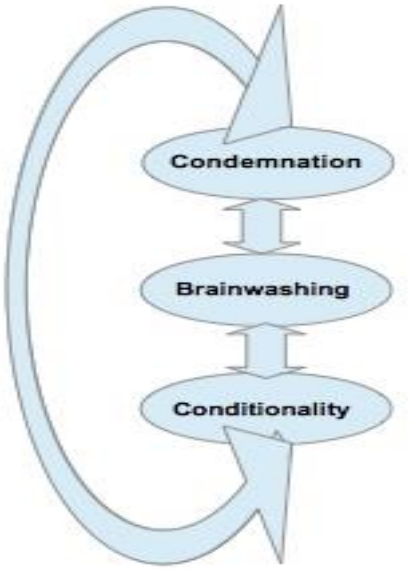

Figure 1. The colonial loop (source: author)

In this view, colonialism – as a constituting process involving judgment, mimicry and shackling – started with the very first encounters between the West and Africa and has never stopped, being the main component of foreign interactions with (and within) Africa. The loop can feed from either end, either from conditionality to condemnation or vice-versa, depending on the tactic employed by the colonists found to be more effective. As a consequence, colonialism has remained active and vibrant. In other words, colonialism exists in modern times and continues to describe the contemporary geo-political relationships.

Condemnation

Given the racist ideologies embedded in Western ideas of colonialism [40, 41], the understanding of condemnation resonates with the harbingers of white privilege [cf. 42]. As described in Chapter 3, white privileges are undeserved and go mostly unnoticed or unrecognised in the conscious actions of *the privileged*. When non-white persons are regarded as not exercising such an agency, white privilege bearers quickly label the former as incapable and subhuman.

White privilege (which in essence is the denial of an epistemic sovereignty to people of colour [43]) is constitutive of a blame game of the 'black' other. This feeds a discrimination and prejudice that is perpetrated by African people against other African people. Thus, the 'condemnation phase' is aided by an internalised view of the perceived

superiority of 'white' privileged persons and their ability to exercise the privileges set by capitalist, white patriarchy [44], as Franz Fanon so vividly described [40].

In the condemnation phase, many of the people I have interacted with in Africa have related a variant of the same story, which I hear frequently. Paraphrased, the narrative goes as follows: "One is told: 'You are just an African, you are not good enough; you are not there yet'". This 'not being good enough' appears to be an undercurrent in all interactions. It is apparent from the outset and becomes part of an assessment of anything that happens: *the African* is 'guilty' unless proven otherwise. African, in this sense, is defined by skin complexion and linked to a geographical place: 'from Africa'. In this respect, condemnation is a general notion, linked to attributes (being), and not based on actions (doing). It pre-supposes negative cause-and-effect relationships (with 'Africa' being the cause) such as: Africa is primitive, Africa is poor and Africa is corrupt.

The general experience of being condemned causes paralysing trauma and prevents alternative views (of an African equality and value) from arising or taking hold. Such condemnation appears to be ever present. Any reference to continued and agency-dilapidating practices of oppression, the plundering of resources, and stigmatising oriental practices, or the pinpointing of misrepresentations, is merely fighting the battle from *within* the framings offered by the hegemony, an impossible task. This fight takes time away from community activities and priorities, which affects the ability of many African communities to reach their full potential. Opposition to contempt is countered by comments like 'grow up' and 'get over it'.

Artwell Nhemachena [12] shows how the labelling of 'animalism' is one of the tools of condemnation. Another example is the prefix 'ab-'. This prefix, the Merriam-Webster dictionary [online] shows, is derived from Latin meaning 'from, away, off' and is used, for instance, in the labelling of groups of people like aboriginals.[151] Condemnation is implicit in master narratives and reports, in development narratives, in the economic growth believe system, and in reports on African countries and their ranking at the 'bottom' of most rankings (for example, by Transparency International [45]). The inherent and underlying nature of condemnation is masked by unilateral definitions of words and moral framing.

[151] This is maybe why, even today, there is still no objection in societies to talking about the dichotomy of 'black' people and 'white' people. In this dichotomy, black and white people are ascribed a particular set of thoughts and behaviours. Mawere and Nhemachena [27] show that the labels 'black' and 'white' are false and pejorative. The labels originate from the discourse by racist theorists from the West who associate complexion with intellect and use it as a way to subjugate the people of Africa with narratives about the superiority of the West. The labelling is still being applied, with blackness also being associated with evil.

Courageous counter narratives in African literature often contain a litany of grievances. For example, Bitange Ndemo demonstrates how "literacy and numeracy [were] introduced as a superior intervention over 'primitive' African oral tradition. Many of those who became literate began to despise and discard African knowledge" [46:8]. In general, Africans are somehow considered 'guilty'. Any proof otherwise, must be vetted by those who are part of the hegemony, in Western-based institutions.

Brainwashing

During the brainwashing phase, 'the condemned' are exposed to unrelenting 'evidence' of foreign superiority [cf. 40]. They are then encouraged to be saved through training and by inviting and allowing for technical assistance, among other things. The aim of the brainwashing is to become like the 'successful' (mostly Western) role models. Further, there is a full negation, and active discouraging, of local expressions of success, with no recognition of how unsuitable such schema, language, and meanings are.

Ha-Joon Chang [47], a development economics expert, recognises that the story around the free market economy represents a brainwashing event, due to much repetition. Through such brainwashing, myths and prejudices have come to dominate our common understanding of how the (in his case economic) world works.

Conditionality

The conditionality phase is similar to the 'carrot and stick'. It is the practice of conditional love: 'If you do this, you will get that'. If the conditions set are not agreed to (by the colonised/former colonised), access to resource will be disallowed, even to resources in one's own, local environment. Not only will resources be withheld, but those who do not agree to the conditions will be vulnerable to being unseated and another 'compliant person' put into place. The primary tool of oppression is the mediation of access to resources. Westerners are perceived as governing access to substantial resources. Mediated through imperial practices, access is focused on financial resources and formal positions in the formal economy, among other things. To be allowed access to resources necessitates alignment with the condemnation of an African life and culture, as well as alignment with the (extant) narrative. If there is no agreement with the 'fact' that a non-African life is better than an African life and that success is having assimilated such a life (for instance, by obtaining an academic degree or achievement), then access to resources is withheld.

Conclusion

The desire for, and pull of, power have set the scene for human history. The expansion of influence and control of people (and nations) has resulted in geo-political meddling since

long before colonial times, and this meddling continues even today. The Western academic world has, perhaps unwittingly, aided power-hungry political and corporate leaders and the general Western populace by sanctifying Western perspectives and realities, while subjugating those from other cultures. What I call '*the Terrible Three*' – Orientalism, imperialism, and colonialism – have been instrumental in supporting expansive behaviours.

The framework of the Terrible Three provides insights into why African perspectives are invisible to many, particular in relation to the influence of hegemonic worldviews. The Terrible Three provide a tool by which to gain understanding, while being immersed in practical, daily life in Africa and abroad. In this chapter I showed how the dominant and local views on colonialism vary significantly. In my research, and in the assessments of the empirical work, I draw on both perspectives on colonialism, depending on the circumstances. However, after the unsettling discovery of the continued potency and practice of the ideologies encapsulated in the Terrible Three – being Orientalism, imperialism, and colonialism – I was keen to question the stability of the academic knowledge on which I was relying. So primed, I embarked on a conquest to explore ways of knowing and Western and African worldviews, in an effort to settle upon a workable theory of knowledge to be able to respond to the areas of inquiry set in this research. This ensuing intellectual quest is reflected upon in the next chapter.

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Chapter 6

Clash of Paradigms: A Theory of Knowledge for Research in Rural Africa[152]

Contents

[152] Based on a book chapter 'Paradigm Clash, Imperial Methodological Epistemologies and Development in Africa: Observations from Rural Zimbabwe and Zambia', co-authored with Munyaradzi Mawere, published in 2015 in *Development, Governance, and Democracy: A Search for Sustainable Democracy and Development in Africa* [1]. This work is based on original research conducted by me, on which I reflected with my co-author. For the purpose of maintaining the flow and consistency with other chapters, 'we' has been changed to 'I' throughout when referring the authors.

Introduction

Theories of knowledge influence the way we experience and interpret the world [2]. This chapter critically examines the theories of knowledge that underpin research in rural Africa and, in particular, how they impact on the research questions presented in Chapter 2. For instance, one sub-research question asks about the employment of the idioms used by engineering practitioners in an indigenous African context and how they interact with western modernist discourse. As I became aware of a different way of understanding colonialism, as presented in the previous chapter, I started to question the whole basis of my understanding of the words expressed in the research questions. The sub-question referred to implies that idioms vary, however, I stumbled upon an entirely different epistemology that I had not seen before. In this chapter, I present my assessments from structural observations *in situ* in Africa while reflecting on aspects affecting views on realities in literature. From this work, I construed an approach to knowledge that embraces epistemic plurality and paradigmatic diversity.

Since the European enlightenment, the dominant ontology for knowledge generation in Africa (and many parts of the world) has been a Western scientism, which has yielded positivism and post-positivism (also known as post-empiricism). Both of these paradigms – positivism and post-positivism – assume that the world is ordered and regular and that reality exists independently of the way that we experience/observe, measure, and learn about it. Post-positivism additionally asserts that context, which it considers to be a set of external factors, affects the patterns of our observations. In fact, while positivists believe that the researcher and the researched are independent of each other, post-positivists accept that the background, theories, models and values of the researcher can influence what they observe [3]. Nevertheless, just like positivists, post-positivists pursue objectivity – objective truth – through experimentation and by recognising the possible effects of any biases likely to influence the researcher. Over the years, scholars such as Karl Popper [4], through his falsification theory, which advances that it is impossible to verify that a belief is true, and others like Thomas Kuhn [5], through his exposition of the paradigm shift, have dismantled positivism. Kuhn's idea of a paradigm shift offers a broader critique of positivism, arguing that it is not simply individual theories, but whole worldviews that must occasionally shift to accommodate new evidence.

What is concerning, however, is that, despite the overwhelming evidence that all theory is revisable (which is now widely recognised in post-positivism), and the fact that all people around the world are endowed with reason and the ability to generate knowledge, some societies have been denied the right to contribute to knowledge production by other societies. The ontology that dominates knowledge generation and meaning-making has, over the years, been promoted and empowered by the political and

economic systems of the capitalist elite. In particular, rationalist theory, which holds that decisions and actions are best based on particular 'facts', has reinforced what I will refer to as 'scientism'. Scientism claims that the scientific method (positivism) – which tends to promote research that is founded on empirically-measurable data, even in the social sciences – produces the most authoritative knowledge. This limits Aristotle's 'logos' – the use of logical arguments and supportive evidence – to an empirical rationalist set, in which knowledge (and its underlying data) is understood to be 'value-free' and asocial. However, Aristotle understood the value of forms of knowledge that are context specific, a notion that scientific enquiry seems to have discarded in exchange for universally-applicable propositions and models. When studying academic texts, even those written by Western authors working in African settings and contexts, I regularly experience feelings of discomfort [6]. I often found applying those works (theories and models) in an Africa context to be eccentric and consciously challenging. It seems that Western epistemology is not as universally applicable as I was led to believe. Education in the West instils a kind of knowledge that assumes universality, when in reality, such knowledge is not applicable in many of the settings in which it is transferred and practised. Academic practice (especially in the field of publishing), demands that one should cite, or at least acknowledge, such previous works [7]. The resulting claim, implicitly embedded in the dominant theories of knowledge, is a claim of universality that might conceal hegemonic knowledge. This is a crucial issue in my research, in which I aim to understand the knowledge systems within Africa. I, therefore, had to investigate my relationship with existing models and theories of knowledge.

Investigating Paradigms

During my research, I found major problems with most of the existing research approaches [8]. When trying to frame research in ways deemed 'acceptable' for academic certification, the loop back into the community – to ensure that the research was useful – yielded little [9]. The 'scientific' processes used were not recognised by the people living in rural Africa and the outcomes were of little relevance to their lives. I noticed that local people in rural African communities had their own ways of doing things, including procedures, from which they expected specific outcomes. In short, there was a paradigm clash between the existing research methods based on Western academic tradition and the traditional research methods used by rural people.

This situation poses a dilemma for critical community development practitioners, especially when assigned to work in a setting that is different from the one in which they received their formal training. I grapple daily with these paradigm clashes. In 2016, Munyaradzi Mawere noted down my confession as follows:

> *It took me many years, and many discussions, to understand that the conflict of the academic approach and the mismatch with its ability to communicate meaning to the rural African community all started from the perspective from which the methodologies we used in our community development projects evolved. In the contrasts presented in rural Africa, it became clear that the academic perspective implicitly involved a positionality outlook that carried a tone of imposition and coercion as from a Western, white, male person.* [1:197]

This sentiment is clearly shared by other researchers (and researchees). In a meeting of Deans of Engineering of Universities in Southern Africa in October 2014, in a discussion following my community deposit (in the form of a presentation) and request for input from participants on experiences in research and development [10] in relation to engineering education in sub-Saharan Africa, a participant exclaimed in frustration: "Can we stop citing work by academics in the West? We are losing time in constantly rebuking their supposedly helpful work. How can we innovate if we are forced to keep thinking like them?"

Continuing Asymmetrical Relationships

What causes contemporary asymmetrical relationships to continue decades after the demise of Western colonial administration in Africa? Access to indigenous African views is challenging. Access to literature is difficult due to the limited number of book shops, logistical difficulties, and pay walls that, in practice, disenfranchises access to literature. Much of the knowledge is captured in orality, a format that necessitates other forms of access and permissions, which are different from those involved in textuality and Western traditions (see Chapter 3). Sabelo Ndlovu-Gatsheni's [11] seems to provide an answer to this question. He recognises a political correctness that influences texts and people's minds:

> *Africa continues to be inhabited by a people suffering from mental colonisation to the extent that the majority of them are comfortable with being judged by Europeans and are always striving to get validation of whatever they do from Europeans and Americans.* [11:46]

Ndlovu-Gatsheni's observation is similar to the one picked up by Mahmood Mamdani [12] who regards most African intellectuals and academics participation in research to be merely as 'hunters and gatherers' of raw data, as 'native informants' who collect and provide empirical data. This is a colonial hangover that should be cured if Africa is to genuinely progress out of a colonial era.

The feminist scholar, Oyèrónké Oyěwùmí [13] also alludes to how many Africans, through colonial imperialism, have had their sense of reality and life worlds shaped by the Western narrative. With regards to African identities, Oyěwùmí calls for the need to actively address this fundamental problem as "without this necessary loosening we continue to mistake the West for the Self and therefore see ourselves as the Other" [13: loc 802]. Oyěwùmí's argument here is critical as far as African consciousnesses are concerned. It is in fact a call for indigenous African people to be conscious of themselves – their identities and roots – such that they learn to appreciate their own cultures before appreciating those of others.

Stereotyping is a mechanism through which African identities are concealed. Handel Wright notes "Africa has a long history of being both romanticised in various pan-Africanist discourses and vilified in racist and colonialist discourses" [14:1]. He adds to this that stereotyped African "voices have been appropriated in the West" [14:2], speaking as if they would represent Africa and/or its people. Over the course of history, master narratives in the West have continued to interact with African performances of roles. This has created images of Africa at the expense of understanding identities of 'African-ness', of African people.

What Oyěwùmí, Wright and others are talking about I would like to define as 'knowledge imperialism': the fact that in Western academies one is expected to make reference to Western texts and their framing, even if they hardly fit the context. This is caused by the convention that requires academics to refer to existing work, and the problem is that literature produced by African scholars (as well as by some Western scholars) finds its way to formal publication only with the greatest difficulty.

I argue that the colonial setup is echoed in our scientific systems and structures, such as academic institutes and scientific journals, which have used their systems as tools for the appropriation of information, leaving the local communities in Africa objectified [14] and disempowered. Representations of Africa reflect the preconceived ideas of the established research community. Or, as Timothy Keller [15] wrote about a confrontation with his African-American friend, in which he explained:

> *You're a racist, you know. […] Oh, you don't mean to be, and you don't want to be, but you are. You can't really help it. [For example, w]hen black people do things in a certain way, you say, 'Well, that's your culture.' But when white people do things in a certain way, you say, 'That's just the right way to do things'. […] You are blind to how many of your beliefs and practices are cultural.* [15: loc 1650]

In rural Africa, local knowledge involves bi-directional, interactive orality and embodied knowledge [9]. Often, one is at a loss as to how to translate rural African realities in academic English text, which deconstructs and decontextualizes reality. Textualisation intrinsically demands an approach from a Western epistemology. Further, when put forth for publication, texts must pass the scrutiny of the gatekeepers of Western systems of thought. I argue that these demands for supposedly value-independent assurances, in practice, dictate alignment with Western values and omit local knowledge enshrined in local morality and believe systems.

Explaining Differences: Culture vs Paradigm

In his study on the integration of people in Belgium, Pieter-Paul Verhaeghe cites cultural differences as the cause of problems with integration [16]. These problems surface in the process of the assessment of cultures, in which some cultures are regarded as less valuable and desirable than others. Of course, it is mainly 'foreign cultures' that happen to be regarded as less valuable and less desirable. Verhaeghe recognises this assessment of cultures as 'culturism'. Culturism de-individualises the individual, as the individual is seen as subject to his/her cultural features.

Verhaeghe [16] recognises a cultural turn in current times, in which cultural explanations are replacing socio-economic explanations about the 'differences between people'. In this cultural turn, he argues, topics shift to social constructions like identities, religion, values and attitudes. He regards the replacement of Keynes theories by neo-liberalism to be an example of this cultural turn. In this theorisation of cultural difference, Verhaeghe goes on to problematize the underlying notion of 'cultural essentialism', as he regards culture as a social construction. Verhaeghe notes that 'culturism' is not neutral, but a political-ideological activity. This means that the Western push for the universalisation of its methodologies and epistemologies could be interpreted as both a political-ideological and cultural war against the societies of marginalised groups of people. This 'war' not only denies other societies the opportunity to participate in global discourses, but derails political and socio-economic development on a global scale. In my studies in rural Zambia and Zimbabwe, the methodologies and epistemologies of the West are more often than not inapplicable to such contexts and unable to stimulate or sustain the progress of the communities concerned. In addition, the universalisation of such methodologies and epistemologies perpetuates a situation in which the epistemologies and methodologies of the rural communities of Zambia and Zimbabwe, among others, remain trapped in orature, with the possibility of them dying out.

On this note, I argue that methodology must be sensitive to the relationships and interactions between people of different cultures. The notion of – and flight into –

culturism is of prime concern. However, when one observes the difficulty that different people have in understanding each other, explanations from the perspective of cultural differences are not satisfactory. I have inferred from my research experiences in rural Zambia and Zimbabwe that, although much effort has been put into explaining cultural differences through education, explanations and 'living-the-life', lack of understanding and the misunderstanding of people's behaviour remains an issue. I, therefore, argue that a view from a cultural perspective does not explain such differences in comprehension, but that a view from the perspective of paradigms provides a more satisfactory explanation.

The term 'paradigm' refers to a set of ideas, a theoretical framework or theoretical model of how society or nature works [17:151]. Talking about a paradigm shift, Thomas Kuhn [5] defines the idea of a 'paradigm' as "universally recognised scientific achievements that for a time provide model problem and solutions to a community of practitioners" [5:viii]. Kuhn explains that it is impossible to simultaneously hold two paradigms, because people holding different paradigms see different things and they see them in different relations to one another, an incompatibility which he calls 'incommensurability'. It is for this reason that we end up having a hegemonic paradigm, which I explain in the next section.

It suffices to say that a paradigm provides an interpretative framework, which is guided by a set of beliefs and feelings about the world and how it should be understood, and which affects the ontology, epistemology and methodologies studied [18]. The classic (Western) paradigm emerges from a realist school of thought, which searches for answers in a natural school of thought. In Africa, the paradigm is more based on a naturalist school of thought that includes both the natural and the spiritual realities, as well as the interaction between the two [19].

Hegemonic Paradigm

In his study of paradigms, Ramón Grosfoguel [20:np] shows that the hegemonic political-economy paradigm and world system is a European, capitalist, military, Christian, patriarchal, white, heterosexual, male paradigm that is imposed on the disenfranchised people of the non-West. As this realisation often seems to be hidden from plain sight – although due to recent geo-political changes this appears to change rapidly – I reproduce his lists of the components of the hegemonic paradigm. Grosfoguel [20] lists:

- a particular global class formation, in which a diversity of forms of labour (slavery, semi-serfdom, wage labour, petty-commodity production, etc.) coexist and are

organised by capital as a source of production of surplus value through the selling of commodities for a profit in the world market;

- an international division of labour between the centre and periphery in which capital organises labour in the periphery around coerced and authoritarian forms [citing 21];
- an interstate system of politico-military organisations controlled by European males and institutionalised in colonial administrations;
- a global racial/ethnic hierarchy that privileges European people over non-European people [cf. 22];
- a global gender hierarchy that privileges males over females and European Judeo-Christian patriarchy over other forms of gender relations [cf. 23];
- a sexual hierarchy that privileges heterosexuals over homosexuals and lesbians;
- a spiritual hierarchy that privileges Christians over non-Christian/non-Western spirituality, institutionalised in the globalisation of the Christian (Catholic and later, Protestant) Church;
- an epistemic hierarchy that privileges Western knowledge and cosmology over non-Western knowledge and cosmologies, and that is institutionalised in the global university system [cf. 24];
- a linguistic hierarchy between European languages and non-European languages that privileges communication and knowledge/theoretical production in the former and subalternises the latter as the sole producers of folklore or culture, but not of knowledge and theory [25];
- an aesthetic hierarchy of high art versus naive or primitive art in which Western art is considered superior high art and non-Western art inferior, which is institutionalised in museums and art galleries in the West and on global art markets;
- a pedagogical hierarchy in which the Cartesian Western forms of pedagogy are considered superior over non-Western concepts and practices of pedagogy;
- a media/informational hierarchy in which the West has control over the means of global media production and information technology, while the non-West lacks access to the means with which to make their points of view enter global media networks;
- an age hierarchy in which the Western conception of productive life (between 15 and 65 years old), which labels people over 65 years old as disposable, is considered superior over non-Western forms of age classification, in which the older the person has more authority and receives more respect in the community;
- an ecological hierarchy in which Western conceptions of 'nature' (as an object that is a means towards an end), with its destruction of life (human and non-human), is privileged and considered superior over non-Western conceptions of the 'ecology' such as *ubuntu* or (ecology or cosmos as a subject that is an end in itself), which considers in its rationale the reproduction of life; and

- a spatial hierarchy that privileges the urban over the rural with the consequent destruction of rural communities, peasants and agrarian production on a worldwide scale.

Knowledge production is, in the analysis of Grosfoguel, subject to an overarching hegemonic paradigm. Grosfoguel invites the researcher to think about the purpose of his or her knowledge production, and who is served by this production of knowledge. This subsequently introduces the question as to who leads the research, and the motivation underlying why certain questions are asked and researched while other questions remain under-researched or are not considered worthy for research. I would like to link this to the point, I made earlier, that African researchers are rarely in charge of research programmes and, if they are, they are usually under Western University tutelage. Those who undertake research from an independent positionality, have great difficulty in attaining recognition by the global (Western) academia. Johan Galtung's [26] theory on imperialism (see Chapter 5) helps to understand that the acquisition of knowledge from outside the local community is part of the exploitative system that supports the hegemony.

The hegemonic view provides a solution to the problematic geographical focus of many labels. Generalisations like 'African culture is like this' or 'Westerners are like that' are stigmatising. Such statements label people and are often linked to geographical areas (for example, 'on the African continent' or 'in the Global South'). Grosfoguel's analysis is attractive as it allows understanding for disparities within geographies and explains opposition to the dominant model within the West and elsewhere. Grosfoguel and Galtung further the understanding of the imperial exploitative nature of knowledge production. The ethical considerations emerging from this are also clear, which explain my feelings of discomfort and conscious challenges.

Most importantly, hegemonic knowledge production creates inherent biases. It projects knowledge that is not recognised by the local communities in rural Africa and therefore – in my understanding – does not reflect the realities in those communities. The hegemonic production of knowledge blocks the possibility of knowing. From my experience as a researcher in rural Zambia and Zimbabwe, the following concerns are among those associated with a hegemonic production of knowledge:

- researchers misappropriate data and information from local communities and, in this extraction of data and information, the possibility of receiving guidance from the communities on the meaning of the knowledge is lost;

- researchers collect information and data without understanding local relevance and embedding; hence, the interaction with the community in contextualising and embodying such information may not be feasible;
- local communities can develop mistrust and resist in many ways, as they are not clear about the positionality and agenda of the researcher and they may have negative experiences from previous research exercises; this may, in turn, create bias in the knowledge provided to the researcher; and
- local communities may have experiences of exploitation resulting from the hegemonic nature of their interaction with researchers (usually educated in the Western hegemonic school of academia) and this may have created alternative strategies of concealing information that is significant to the protection and integrity of the community and cannot be retrieved and understood through conventional research approaches.

In my experience, an alternative way of engaging with research in the context of local rural communities is needed. Such communities are often referred to as marginalised. The term marginalised needs to be understood here as being 'marginalised' in the language of the hegemonic paradigm, as, the communities themselves do not necessarily experience themselves as marginalised and mostly regard the community and its indigenous knowledge as critical to their existence.

The Need for Epistemic Pluralism

Reflecting upon my long-term engagement and life in rural Africa, particularly rural Zambia and Zimbabwe, I deduce that there are other views of reality in which the whole system of imperialism is experienced and explained differently. In these communities imperialistic behaviour is regarded as behaviour outside the purview of the people's central philosophy of *ubuntu* – that is, outside of the paradigm in which the community is seen as valuable. In rural Zimbabwe and Zambia, from where I draw the field data for this work, there is no framework for linking imperial behaviour with what it means to be human [27]. Here an explanation of cultural differences does not solve the underlying incompatibility of understanding due to the clash of paradigms. This realisation requires a look at the methodological consequences for theories of knowledge. Entertaining these issues led me into ethically-constrained positions. How do questions and processes towards answers interact with the context, and is there such thing as 'context-independent research'? It can be concluded that in every act of research in Africa, whether on social or natural sciences, the issue of colonialism must be considered [28]. Even if one believes the myth of the departure of colonial powers from Africa, the issue of coloniality is an important issue to reckon with. Therefore, methodologies that have emerged from localities of power must be scrutinised as to their relationship with

imperial and colonial attitudes and their enshrined colonial agency. Yet, this is a tedious process, given that such conditioning is not explicit and, in many instances, it remains tantalisingly difficult to recognise the dominant epistemological positions from which the methodologies are borrowed or adopted.

I argue in this chapter that, although much academic work might seem sound and make sense to an academically-trained person, it has to be read and understood in terms of its meaning and relevance to the communities in which the content is to be applied in order for it to be given contextualised meaning. Knowledge divorced from such meaning is not real knowledge and may speak more to the perspective of the researcher than the perspective of those that were the subject of research. Such knowledge production becomes self-perpetuating in that it continues a circle of knowledge that confirms the existing hegemonic paradigm without producing relevant understanding of the communities that are researched. This necessitates the production and consumption of research work grounded in context. Using unsuitable theories of knowledge will not result in (and may even derail) community development.

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Part II

Engineering and Technology in an African Place

Contents

Chapter 7

African Engineering: Macha Works[153]

Contents

[153] This chapter is based on a short book I authored called "Placemark" [1], the title emphasising the importance of this research in location and in embodied presence. I have rearranged the chapters and left out some parts that are not so relevant to this chapter. I have also indicated the dates when the notes were made pertaining to the observations reported in this chapter. Further, this chapter is interwoven with a book chapter called 'African Engineering and the Quest for Sustainable Development' that I co-authored with Munyaradzi Mawere, which was published in 2016 in 'Theory, Knowledge, Development and Politics: What Role for the Academy in the Sustainability of Africa?' [2]. This work is based on original research conducted by me, on which I reflected with my co-author. For the purpose of maintaining the flow and consistency with other chapters, 'we' has been changed to 'I' throughout when referring the authors.

Introduction

In 2008, I started writing down my experiences in Macha, Zambia, and published them as community deposits in a blog on the Internet.[154] I had lived in Macha since March 2003 with my partner, Janneke van Dijk, and our children, Merel, Elmo and Beauty. Before that, we lived for two years in the rural community of Murambinda in Zimbabwe. My wife is a medical doctor trained in tropical medicine and holds a doctorate as a researcher in infectious diseases, paediatric HIV and health management. Macha has been our full-time home for 10 consecutive years. Macha is set amidst a sea of undulating bush land where most people live in homesteads with extended family. Daily life in Macha centres on communal activities like working in the fields growing food, and where everything is discussed, discussed, and discussed again.

I compiled my blogposts containing observations in rural Africa in the book 'Placemark' which forms the basis for part of this chapter. In 'Placemark' [1], I recorded reflections on my experiences. In this chapter, I have rearranged my observations into several themes that are relevant to this thesis. These observations were written during the period 2008 – 2011, starting from five years after our entry into Macha, or seven years after entry into Murambinda, Zimbabwe. The purpose of this chapter is to explain the context of Macha as my research area and to show examples of the reflexive approach applied in my work – the manner in which I approach the empirical world, 24 hours a day, 7 days a week, 365 days a year. This chapter also sets out some of the observations that led me to reassess how we can understand what is relevant when considering the introduction or use of technology in African contexts, focused on the extended case study of information and communication technology in the rural community of Macha, Zambia.

The design, deployment and use of technical infrastructure and solutions are value-laden activities. Although engineering claims to provide neutral and logical answers to problems, any physical intervention interacts with the cultural and political perspectives embedded in contemporary worldviews and paradigms [3]. This is because all claims, whether social, scientific, religious or cultural, are made in context, if they are to be of any relevance.

This chapter introduces a view on engineering in Africa, together with its settings and constructs in context, with a focus on practitioners in rural areas. Particular attention is given to the behaviour and relationships of engineering practitioners in relation to interactions with foreigners, giving indications of how actors deal with their existence in a connected world. In view of what has been presented in Part I of this thesis, these

[154] My blog postings from Macha, Zambia are available at http://gertjanvanstam.blogspot.com/

notes on life in Macha show the schism that seems to appear when one tries to balance the introduction and use of contemporary technologies in a rural African context. Such schisms are a clear indication of a epistemic plurality and paradigmatic diversity, the existence of which was introduced in the previous chapter.

The African practitioners I have met in rural African communities in Zambia and Zimbabwe often find imported technologies to be unfit for their contexts, sometimes irrelevant and, in most cases, detached from the epistemologies of indigenous people. The explicit aims of engineering are "the development, acquisition and application of technical, scientific and mathematical knowledge about the understanding, design, development, invention, innovation and use of materials, machines, structures, systems and processes for specific purposes" [4:24]. However, one questions the use and relevance of engineering when applied broadly in all contexts, including those that are foreign to the context in which it was developed. In Africa, the deployment of foreign technology seems to be fostering and exacerbating inequalities, disempowering the agency of African practitioners and people, and creating a multitude of divides, all with social, digital, and cultural impacts.

This chapter focuses on the techno-social grounding of African engineers in Africa. African engineering is envisioned as the contextual formulation of a salient and contextual African technological experience. African engineering is a distinct and empowering activity that could include, but does not focus on, the contextual adaptation (or indigenisation) of imported technologies. It is an activity situated in an environment ravished by centuries of exploitation and oppression and that is still dealing with the impacts of settler colonialism. For this reason, African engineering has to contend with the colonial narratives historically embedded in the systems supporting the natural sciences. Maintaining space for African engineering is a daunting, albeit crucial, task. The objective of this chapter is to reveal insights into the shaping of the physical and psychological environments in Africa by communities in those environments, to recognise engineering systems cognisant of African cultures, societies and communities. Such insights provide a basis from which to recognise indigenous African technical agency, which might well be the greater quest, for which the research questions provide the 'guiding frame' (see Chapter 2).

The purpose of this chapter is to indicate the empirics of my research in relation to the introduction of technology in an African setting. This chapter does not aim to provide an assessment of all the experiences in Macha. Due to the realities of the Terrible Three in everyday African life, the powers-that-be do affect people's personal lives, especially in so-called 'peripheries'. As writing is a wielding of power, as explained in Chapter 3, I do not wish to disclose any statement or indication of a personal stance that can be

attributed to any person living in rural areas or anywhere else in Africa, whether directly or indirectly, in any way. An exception is references to leaders whom, in their capacity as community representatives, have given me explicit permission to link their names to statements and narratives. After filing this thesis, I intent to contribute to a more comprehensive write up of 'the story of Macha', in collaboration with and under the guidance of the community leadership in Macha, in a wording aligned to the local culture. The purpose here is to present some of my observations based on my earlier and publicly accessible community deposit in the form of my book 'Placemark', which I discussed, wrote, and compiled from within the Macha community and on which I received direct feedback while in the process of writing it. I, therefore, feel that these observations have been validated in an interactive process of experiencing, writing, sounding out through reading, rewriting and rereading in the community of Macha.

Methodology

On 2 March 2010, I noted down the rigorous ethics I apply to my work of Macha (and elsewhere). These statements were the result of a collaborative learning process at Macha Works, where, in times of externally-imposed stress, the management team regarded an explicit and written statement of ethics to be helpful.[155] Based upon the outcomes of those deliberations, on 2 March 2010, I echoed the statement approved by Macha Works, and wrote down the following ethics to guide my work; I pledge to:

- be honest in all my communications;
- be faithful in my relationships;
- do nothing out of selfish ambition or conceit, but to look out for the interests of others;
- refuse to elicit, accept or pay any bribes, and to report those who do;
- be a diligent leader without being harsh, and to remunerate associates justly and fairly;
- be a peacemaker;
- approach my activities wholeheartedly;
- submit myself to legitimate governing authorities;
- connect with the disenfranchised by investing in the broader community; and
- collaborate with my peers to impact communities and nations.

The methodology for this chapter is set in a participatory research setting, in which I engaged in an explicit self-aware meta-analysis focused on gaining an understanding of the intersubjective elements in the community of Macha and beyond. I reflect on the

[155] These statements were amended from the Unashamed Ethical campaign initiated in Cape Town, South Africa.

meaning of the narratives of actors, where the different narratives meet, and where the world connects against the backdrop of colonial practices. I use reflexive writing to travel multiple trails and negotiate interminable deconstructions, analyses and (self) disclosures [5]. The writings are experimentally, as they force me to adopt a linear introspection – as writing demands a more-or-less linear format of presentation – of my experiences. I have tried to describe common threats and reoccurring phenomes in the community of Macha and other places to which I have travelled.

These writings were produced for, and through mutual collaboration. In the process of writing the blogposts, I involved community members – whomever would happened to be in the vicinity, whether they be Macha Works leaders or anyone else (for instance, a person working in a field, a manager in charge of car maintenance, or a person preparing food) – in a reflexive dialogue to analyse and evaluate observed narratives. My subjective, written accounts provided a tangible way of stimulating discussions and interactions with interlocutors in the community and beyond. We would read the words aloud, looking at the words together on paper or a computer screen, or discussing them using instant messenger apps (often Skype). My writings were a deliberate act of reciprocity, through which I endeavoured to produce something tangible and in such a way as to contribute to the 'materialisation' of Macha in written words, an effort that many community members felt hesitant to do.[156] Further, I was able involve my family abroad, by dedicating the resulting book, 'Placemark', to my parents, handing it over at a special family occasion, when they visited us in Zambia.

In this chapter, I present these reflections based upon my intuition and thinking as primary evidence for this thesis [cf.6] and for the derivatives to be presented in Part III. Although Part II of this thesis is in no way exhaustive, it is an indication of the wide range of evidence, explicit and implicit, which can be accessed in oral repositories – in people – in the community of Macha and beyond, and even in the ever-growing library of documents, produced as community deposits, during this research (for example see Appendix III for the listing of 42 formal publications, of which 31 are peer reviewed, and Appendix IV for the listing of 28 invited and formal presentations and keynote addresses made at academic and professional forums during the course of this research).

[156] There was keen interest in my writings, and in the manner that it conquered perceived barriers and provided bridges to communities (of practice) beyond the local community. Not only was there interest in my honing and use of writing skills but also in the aspect of a constructive and 'positive' textualisation of local realities, in response to *positive inquiry*. Texts, thus, were carefully written and aimed for conviviality in constructive and positive contributions to the (life in the) community.

Locating Macha in Africa and Africa in the world

Macha is located in the rural areas of the Southern Province of Choma District, in the Chief Macha Area, Zambia (Figure 2). Macha is a resource-limited rural area in Africa with scattered homesteads, little infrastructure, and people living a subsistence lifestyle; the primary livelihood is maize farming [7]. Like many rural communities in Zambia and Zimbabwe, Macha has a concentrated central area and a large, geographically-dispersed rural community in scattered homesteads [8, 9]. The Macha chiefdom contains approximately 21,300 residents in an area of 20 x 30 km.[157] The central area contains health and education institutions, served by a small establishment of medical and education professionals [10].

Figure 2. Maps showing location of Macha in Southern Province, Zambia [11]

Africa is large. The Gall-Peters projection shows areas of equal size on the globe equally sized on the map, highlights its large surface (see Figure 3). Africa is larger than China, the USA, Western Europe, India, Argentina and the British Isles combined. And its population is booming: UNICEF estimates that there will be over 2 billion births from now up to 2050, with over 40% of all children of the world living in Africa and with over 1 billion youth under 18 [12]. UNICEF projects that Africa's population will potentially quadruple by the end of this century [13].

[157] Data Chief Macha via Fred Mweetwa, 2016.

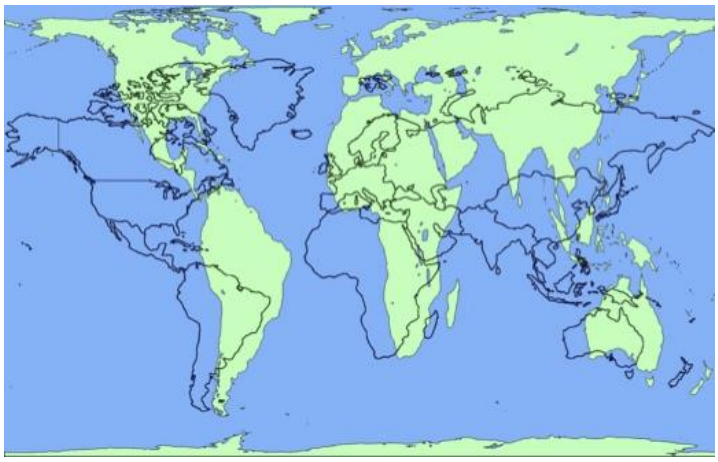

Figure 3. Gall-Peters projection and Mercator projection of the world [14]

The international borders of the countries in Africa were drawn up during what is known as the 'Scramble for Africa'. Zambia is a typical product of this process. Its territory was set by the Berlin West Africa Conference of 1884–85. Northern Rhodesia was demarcated in 1911. The British South Africa Company administered the area until the transfer of the colony to British administration in 1924. In Figure 4, I reproduce a map indicating the diversity of people, groups and probably cultures in Africa.

MAP 2: SUPERIMPOSED ETHNIC MAP OF AFRICA
(Source: Africa Institute and De Blij, 1977: 102)

Figure 4. Superimposed ethnic map of Africa [15]

Macha Works

Macha Works is the name given to a group of collective activities implemented in Macha. Starting off as the LinkNet project, which was subsequently registered as the LinkNet Multi-Purpose Co-operative Society with the Registrar of Co-operative Societies on 25 April 2007, the activities of Macha Works have expanded from the provisioning of Internet services to the operations of a community centre and the provisioning of schooling, housing, and transport (ABFA-Macha aerodrome), and more. This expansion led to the name 'Macha Works' being adopted. LinkNet deployed a wireless network that provides connectivity to approximately 300 community workers and visitors living around a mission hospital and medical research institute using a satellite-based Internet connection [16]. ICT access has been available in Macha since 2004. Telephone services arrived at the end of 2007 through a mobile GSM network.

In Macha, access to computers and Internet connectivity emerged from an articulated vision that was the outcome of discussions following unstructured interviews performed in the community by Fred Mweetwa. I met Mweetwa for the first time when he knocked on the door of our house at Macha Mission Hospital in 2003. Just out of high

school, he was selling seedlings of indigenous trees to make a living. During this and subsequent encounters he told me about communal activities for the planting of trees, beekeeping, and the preservation of culture. I enquired about what his dreams were. He told me that he longed to facilitate the community to have access to information, from the community and further afield in a way that the community could relate to and respond to. Challenged by me to provide evidence of the desires of the community, Mweetwa went about interviewing community members and stakeholders, soliciting answers on one question only: "what does the community want?". These interviews took place in early 2003. Apart from requests for more opportunities to study and for more medical facilities, the community requested information and communication technologies to facilitate its communication and enable them to access information. As a result, a vision was articulated and augmented by the desires of other local talent[158] to access computers and share the benefits of information and communication technologies within the community, among other activities.

There was active cooperation and exchange visits between local talent in Macha, Zambia, and 'Vision Internet', which started providing ICT services to its community in Murambinda, Zimbabwe in 2002. Seeing the vision materialise in Macha in the following years, a desire grew in Macha and other communities in Zambia to make ICT access available in all the rural areas of Zambia. In a collaborative exercise between local talents and myself, with writing support from a senior expert, a LinkNet Masterplan was developed and published on 20 February 2006. By invitation from the Zambian House of Chiefs, a continuously expanding vision and a progress report was presented by Macha Works to the House on 14 May 2009.[159] Since that time, chiefs from all over Zambia have been asking Mweetwa about progress and on how to engender such development in their communities. At about the same time, after five years of self-funding, the first external support became available from abroad to act upon the broad vision of the community. In this chapter, I focus on this vision in relation to ICTs and internet access, but sidesteps will be taken to other areas, as all developments at Macha Works are regarded as interconnected.

The process of making ICT access available in Macha inspired many other communities in Zambia. Practical ICT implementation was supported from the Macha Works base in Macha for the deployments of ICTs (and other activities, like training) in Chitokoloki, Kalene, Lusaka, Mapanza, Mpika, and Mukinge, among other places. A steady growing

[158] For a snapshot of twenty of the many local talents that were involved in Macha Works around 2011, their profiles and roles, see http://www.machaworks.org/en/talentswizard.html

[159] The presentation can be accessed as community deposit at https://sites.google.com/a/machaworks.org/20090514-house-of-chiefs/

network of collaborators emerged and university students from the University of Zambia and the Copperbelt University, as well as others, participated in the work.

In 2012, in Macha, a protracted campaign of imperious meddling ensued from actors positioned in the centre-of-the-periphery-of-the-Periphery (cpP) in the activities of Macha Works, which can be said to be positioned in the periphery-of-the-periphery-of-the-Periphery (ppP), affecting access to land and buildings. The assessment of this push is outside of the scope of this research. In line with mediations as described in Chapter 4, my interactions were persistently passive, reactive, and removed. Of course, I continued to ask the community leaders for permission when publishing community deposits of 'good lessons learnt', reported to the community on the progress of my research, and facilitated Macha Works presentations wherever I could. Late 2016, I undertook a journey to visit Macha Works to present this thesis and ask for permission from its leadership and the wider community to prepare it for communication to third parties, like Tilburg University.

A retrospective approach to the co-operative organisation, Macha Works, with its ICT-focussed activities in LinkNet, provides the empirical evidence in this chapter. My role in Macha Works can best be described as an embodied 'instigator'. My presence as a foreigner instigated curiosity. While interacting with the dreams of those in the community and facilitated by local talent, I was also bringing to the community certain skills and experience, particularly in the field of technology and engineering. Yet, I was unwilling to implement any activity that was not of interest to or rooted in the community. The uptake of any activity was, therefore, entirely dependent upon the wishes, interests and energy of the community, which was articulated in many various formats, for instance, in community meetings, during visits by stakeholders, through stories and articulations of the dreams of young people, and by artisans working on a day-to-day basis.[160] I will try to highlight this approach in the observations provided in this chapter.

The programme of Macha Works received considerable acclaim in academia and by the media. In 2011, a BBC report made a documentary of Macha Works [17]. Some of the people figuring in this extended case study, such as the leader of Macha Works, Mweetwa, were interviewed for the programme. What could be achieved also excited me. I wrote on 2 February 2010 [1]:

> *Yes, I am enthusiastic about the 'Macha Works Model', as a framework for (re)action valuing relationships. The model works on 'calling' first, 'commitment' second, and then come phases of*

[160] For a community deposit on the history of Macha Works, created as a participatory video by 'ladypnana' is available at https://www.youtube.com/watch?v=Bv-5XafZM3E

'looking', 'reacting', 'waiting', and 'interacting'. Although this takes time, it is wonderful to see that thus enshrined activities in the Macha area are there to stay.

Knowing that the community is the place where I want to belong has been critical, as I will explain in this chapter. This requires a notion of what I referred to as 'calling' or dedication (see also Chapter 4). This is followed by a commitment to follow through, despite the many challenges and difficulties. The approach of the 'instigator' requires a passive presence in which any action is only in reaction to an invitation by, or action in, the community. This requires patience and waiting until the time is right to act. Any action must be taken within the context of an interaction, in which the relations in the community are leading every step along the way. Being an instigator is induced merely by my presence, but any of 'doing' is only ever done in response to an explicit invitation by the community. I will explain this approach in the following sections based on my observations in Macha.

The success of Macha Works has been noted by the highest authority of the country. Zambia's Vice-President opened the Vision Community Centre – a purposely-renovated building from which Macha Works operated at the time – which already boasted over 10 inter-dependent units, acting as an rural innovation hub. Infrastructure development of transport, communications, and energy were tackled in a manner that empowered all in the local rural community and that support multiplication and growth beyond the rural Macha area. The achievements of Macha Works have been recognised by the national government and the various regulators. LinkNet has even received support from the ICT regulator through the Universal Access Fund in support of the role out in other areas. One of the projects, LinkNet, focuses on the empowering of rural communities (including health and education institutions) by building and maintaining internet service - has branched out to other rural communities [1: 13 Mar 2009].

The attention Macha Works has received has resulted in complex interactions at the highest level of government and in the various districts where Macha Works has supported local communities to reproduce its concepts, although how this is being executed is beyond the scope of this study.

Of course, this extended case study, as presented in this chapter, is influenced by my role in Macha Works, which was primarily to learn what the community was and my attempts to understand how I could belong in it. I identify the cultural challenges I had to overcome, given the mismatch of my own western background and the cultural values that govern life in Macha. The case study further looks at the technical solutions that were implemented to introduce and enhance the use of an ICT network and identifies the challenges that were encountered in doing so. I end this chapter with

reflections on what my experiences mean for an understanding of technology introduction in an African setting.

The Macha Life

On 14 December 2008 [1], while I was sorting, packing, and storing goods that we had received from donors all around the world for specified empowerment projects in the rural community, I found myself considering how much I had learnt in Macha. The work in Macha evolved from a process of innovation and learning. Local talents were invited, trained, mentored and supported in a process that was neither planned nor documented upfront. We had been part of a process of change that evolved 'as we go'. In this process of change, we had learnt a lot, and I finaly had an inkling of how to be part of such a change, in a process that is participatory and focused on constant learning, not from a distance, but 'present' and involved. (Participatory) action research (and learning), or PAR/L was an important enabler in Macha, supporting the cycles of learning, action based on learning, and learning resulting from action.

Slowly, I had grown into a researcher, a novice in an unknown world where I came to realise that my baggage of assumptions was an obstacle to understanding the reality in which I was living (see Chapters 1 and 2). I had to accept that everything I knew may not be meaningful in rural Macha. It was a difficult journey of ridding myself of the deeply-engrained ideas that made me who I was. I began to notice underlying and dormant notions, one by one, as I confronted my own natural thoughts, which contrasted with the very different reality of life in Macha. I found being 'white', male and from the West to be a definite disadvantage to immersing myself in this new life. Not only did I have to throw away the vantage point from which I have entered this new place, but the Macha community continued to see me as having the qualities that are associated with this labelling.

Rural areas are deceivingly tranquil. For my family, the first five consecutive years in rural Africa resembled more of a rollercoaster ride. I observed, and tried to participate in, the community, hopefully contributing to and facilitating, through interaction with the community and the introduction of technology, the strengthening of the infrastructure for human interaction and training. In Macha, an interactive community development structure has been cultivated and solidified through the collaborative efforts of many. The vision focuses on inspiring people in rural communities to reach their collective and individual potential. This community collaboration is called 'Macha Works'. It is a Centre of Experience, a co-operative of local heroes.

In Macha, a holistic perspective is being implemented, with activities set up horizontally instead of vertically and with simultaneous investments in many different fields. This

vitalises and sustains the inter-dependence of structures and systems. This is done in an environment of trust and respect, which has developed from immersion in the local community. Local leaders create space for change to emerge, instilled by a long-term view of progress. In such a setting, one guides and operates from the side lines, instead of directly telling colleagues what needs to be done. This allows for local talent to stand up and for local initiatives to be fostered.

Proper respect for the local environment necessitates aligning one's life with local life conditions, valuing relationships, showing commitment, living in the 'here and now', without the pressure of time, synchronising resource availability with seasons, recognising – and submitting to – local authorities. This supports the kind of sustainability that the local community can embrace, own, and operate in. I have also come to the realisation that a solution cannot be defined, unless the community has recognised that there is a problem. I observed the following:

> *Possibly only those who ask – who express demand – have the initial capacity to recognise an intervention as a solution. When no-one expresses the local demand, no-one recognises the local solution.* [1: 28 Jan 2011]

The key ingredients of the Macha Works approach are that local talent are in the driver's seat and that the solutions work in rural settings. The purpose is to enhance the community with ICT (if there is an explicit local demand for it). An important observation has been to learn how the community expresses a real demand. This is not always easy to decipher [1: 20 Jan 2011].

On 7 November 2008 [1], I touched base in Macha, after a two-day visit to Lusaka. In a short space of time I saw all the mind-boggling amount of activity taking place. The approach pursued in Macha is to invite local talent to take the lead. As I walked around the village, I saw people working on:

- clearing for high voltage power lines to go to the Ubuntu Campus;
- new roads to a proposed site for bio energy production;
- the replacement of a worn-out water pump;
- building a classroom for the LinkNet Information Technology Academy (LITA), the ICT-training branch of the proposed Works Academy at Macha;
- finishing the Macha Innovative Community School (MICS) House, the housing facility intended for destitute children at MICS including housing for dorm parents who will guide the children;
- finishing the first two 'rondavel' housing experiments at Macha;
- improving the roof of the Vision Broadcasting House at the onset of the rains; and

- the implementation of new technology at LinkNet in a makeshift laboratory environment, including network mesh technology, access, and accounting technology.

While walking and chatting in the village, I met local talent from whom I learnt about local financial and accounting processes. From other local talents, I learnt the implications of the workings of administration. Then I discussed the flight schedule of the airport with the local leaders at the 'All Blessings From Above' ABFA-MACHA Aerodrome and the new drugs to be tested at the Malaria Institute at Macha (MIAM) that I had transported from Lusaka. I also handed over an old battery that I received in town for a local person in the rural area [1: 7 Nov 2008].

Maintenance is a recurring part of life in Macha. In one of my notes, on 2 February 2009 [1], I wrote how it is high time that the Tonga Hut in our garden is repaired. The grass roof had caved in one year earlier. Good rains in the previous year resulted in a full roof-collapse, so there was no escape from repair. Now the grass has been laid on a new wooden frame. The same day, I reported the start of the Zambian electricity company, ZESCO, to deliver on its commitment to connect Ubuntu Campus with an 11 kV line. This was 11 months after we had paid the contract.

Equipment, tools – all technology – will break one day. This is commonly known. But the rate at which things break in rural Africa is sometimes hard to comprehend:

> *This morning I noticed that only one seat of our six bicycles is not broken: the seat on Elmo's bicycle. That one we replaced with a new one last week. My bicycle seat is broken, Janneke's bicycle seat is broken, Merel's bicycle seat is broken, Beauty's bicycle seat is broken, and the guest bicycle seat is broken too.* [1: 12 Jun 2009]

It is not just bicycle seats that break, but also the gadgets that allow us to be connected to the Internet:

> *We were taking files off a laptop this morning, as the screen is faulty. We will continue using the laptop with an external display, if we can find a working one! And I struggle to keep a backup for my data, as three hard disks bigger than 500 Gb broke within one year. Now there is only one left – with all my data on it. Rural Africa is harsh on stuff. Stuff we get from the West that normally lasts there, breaks here at an unimaginable rate. Stuff that we buy in the South, often cheaply made, breaks even faster. All in all, in rural Africa it is not really about implementing. That is just one step, a start. No, it is all about maintenance.* [1: 12 Jun 2009]

Rural Africa is often in survival mode: surviving the HIV pandemic, staying alive in situations rife with malaria, TB and other diseases; in search of – and often having to fight for – education, water, transport, communications, energy, and financial services. All this is just to make ends meet, to make it through to the next day [1: note 9 February 2010]. And despite hardship, the people in Macha keep making the best of the situation:

> *Today I saw a grandmother wheeling her handicapped grandson in a broken wheelchair through slush and mud to the Kids Club in the Care House. I was awe-struck.* [1: 15 Jan 2011]

Despite the harsh realities and inherent difficulties and challenges, developments in Macha, in the rural area of the Southern Province in Zambia, have been of interest to national and foreign visitors. I have continued working on putting the orally communicated information into written format as part of my research to document the experience and reflect on its meaning. My writing has covered locally-defined and tested ideas, plans for health, education, transport, communication and agriculture. I now also have access to the Internet in the whole of Macha on any device, so we can continue communicating and interacting over cultural, geographical, time, and any other barrier.

I had returned to Macha a month earlier, from a long trip across the world. I flew to Zambia on 25 October 2008. It had seemed an epic journey: about 15 hours of flying time, from take-off to landing, direct from Washington DC to Johannesburg SA, from winter to summer, from North America to South Africa, from here to there. The screen in the airplane seat in front of me had shown a curved line from IAD (Washington) to JNB (Johannesburg). The line touched West Africa, somewhere below Mauritania, but then quickly went back over a blue part on the screen, the Atlantic Ocean. Then the screen had switched to numbers. Height: 10,073 metres, Outside temperature: -47 degrees centigrade, Ground speed: 905 km. Distance travelled: 4,064 kilometres, Distance to destination: 9,160 kilometres, Time to destination: 10.26 hours. Time at destination: 04.37 hours AM, Time of arrival: 02.57 hours PM. I concluded that an aeroplane is a marvel of engineering indeed. I felt the impossibility of moving body, mind and spirit at the same pace.

Returning to Macha, the temperatures were high – over 40 degrees centigrade these days [1: note 30 October 2008]. Ubuntu Campus was hot an has a great new jungle gym. It felt good to be back in Macha. What Macha is, becomes clear in comparison with the other realities. Macha is a place full of life. Heart-warmingly, a number of people visited our house to welcome me back home today.

It makes me reflect on the extremes of the realities I am trying to bridge. While traveling between time zones and space, the differences in the environments of the realities through which I move light up as secret messages written with lemon ink, which emerge only in the heat of a flame. Deciphering the meaning of these messages is the research I have undertaken to do.

Local Macha talents, Fred Mweetwa and his team, have been entirely in charge since March 2011. They have been making incredible progress. A few months after he took the lead, on 11 November 2011 [1], I went to see the Macha Innovative Community School (MICS). For the first time that season there had been steady rain in the early morning, so it was a nice, fresh start at the MICS House. It was impressive to see the discipline of the local teachers, who were supported by others from various backgrounds and areas from Zambia and overseas. There is strict and tight planning, and lessons start on time. There is drive and power in all involved, which is rubbing off. The Zambian head teacher commented: "These children learn more than I did during my primary school" [1: 11 November 2011]. The MICS is integrating high-quality education with local resources in Macha. MICS currently has about 100 students. MICS acts as an model school, inspiring and encouraging growth in the other primary schools in the area (and beyond). The current team has grown MICS from the 'proof-of-concept', with one class room in 2006, to 'proof-of-reproduction' with two class rooms in 2007, to 'proof-of-production' with 7 grades operating in 2011.

As the school continues to teach the next generation, I am learning – still learning – how to decipher the Macha reality. This chapter describes my observations and how I have interpreted these into an understanding of how technology relates to local realities in Africa, based on my experiences in Macha.

The Borehole Water Pump

In Macha, water comes from deep down; boreholes are over 70 metres deep. The yields are low, due to the solid rock formations in the ground. Boreholes often run dry. Ensuring a continuous water supply in rural Macha is a challenge. On 16 November 2008 [1], I wrote about a miraculous saving of our lone borehole and pump at Ubuntu Campus. We had to drill three boreholes in order to find one yielding water – rated 1.5 litres per second, 60 metres deep – at Ubuntu Campus. The cost of drilling one borehole ranges from EUR 4,000 to 8,000, depending on the supplier and transportation costs of the drilling rig.

Figure 5. Ubuntu Campus (in demarcations), site of Macha Works [18]

Our one horse-powered borehole pump costed EUR 1,500 one year earlier, excluding transport costs, and it stopped working about a month ago. Diagnosis: burned engine. Result: no water at Ubuntu Campus. Leaving people hauling drinking water in all kind of barrels and jars to Ubuntu Campus, I made a trip to Lusaka with the pump for assessment (transport cost USD 800). The diagnosis was confirmed: a burned engine due to a worn-out pump. As we have 'run dry' in more than one sense, I bought a new 1.5 horsepower engine, with pump, with private funds and took it back to Macha.

Upon assembling the pump and pipes, and lowering it all into the borehole, it was found that our two operational generators were not strong enough for the new pump. Fine-tuning of the voltage from a newly-acquired generator took another couple of days. After a few minutes of pumping, the new borehole pump stopped working. The electronics became hot and the pump needed to be stopped. No water was flowing. Assessment was made by the experts from Lusaka by phone: it was a wiring error. Our chief technician, Lemmie, took the Thursday plane from ABFA-MACHA Aerodrome to Lusaka with pump, engine, electronics and all 100 metres of wire. That same day, it was assessed that the wiring was OK, but the pump was full of mud, drawn in during the short exercise. After the cleaning of the pump, Lemmie took the whole assembly back

to Macha. He arrived home at 02.00 hours after taking a taxi in Lusaka, bus from Lusaka to Choma, and, again, a taxi from Choma to Macha.

On Friday morning, the restored pump with the well-tuned generator was pumping from a higher position and water filled the tank at Manzi Office (*manzi* = water in the Tonga language). After 15 minutes the borehole ran dry and the pump had to be switched off. Yesterday the whole assembly had to come out again. With the pump lower, it worked well for 10 minutes, and then again water stopped flowing. Now in crisis, as users were out of water again on days with a temperature of almost 40 degree temperatures, the community decided that 10 people would work on the bore hole site this Sunday morning. Disaster really struck when the nylon pulling-rope, attached to the pump, broke, just when the pump, engine and pipes were reaching the surface! The rope was probably weakened by a year of soaking in water in the borehole. Now the pump, with about 20 metres of 40 mm diameter piping, full of water, was hanging only on the electricity cable attached to the pump.

At this point I was invited to come to the scene. I saw a hugely-strained electricity cable holding many tens of kilogrammes of pump, engine and water-filled piping about 10 metres under the surface in the borehole. The risk of losing the borehole pump and the borehole itself was huge. Yet, there was no other alternative then to start to pull on the strained electricity cable. Five or so men carefully pulled the heavy load. When the pipe came in sight, the wire started to slip and it felt like the electricity cable would snap and the whole assembly would soon disappear into the deep hole. We blocked the cable and reviewed our options. There were none so the unanimous decision was to keep pulling. Apparently 'down there' something got some grip, the electricity wire was still in one piece, and the pump came further out. Then the electricity cable slipped down again.

Against all logic, we kept pulling and, miraculously, the water piping now appeared from the borehole. When it was halfway out, we noticed the electricity wire had come completely loose from the pump and was entangled in a bunch of thin earth wiring between the borehole pump and water pipes. Further pulling of the bundle revealed that the earth wire also had come loose and become entangled with the remaining nylon rope. In the end, only the rope was attached to the load.

Although there are still many obstacles to overcome before we have water running again – like where and when to get new nylon rope and new water pipes – this morning, when it was all over, it took over 15 minutes for the adrenaline in my body to settle to normal levels. I am still elated that we miraculously saved the borehole.

Existence Farming

At Macha we live at about 1,100 metres above sea level. Much of Southern Africa is more or less on a plateau. The penguins in the Madagascar movie almost got it right: 'Smile and wave' is actually 'Greet and smile' in Africa. While moving to and fro to bring the children to school, I met lots of people walking and on bicycles. With each one, greetings are exchanged, and I am greeted with kind words and a smile. How nice to start the day with good words, recognition of each other's existence, and broad smiles [1: 10 Mar 2009].

On 19 November 2008 [1], I wrote:

> *This morning whilst cycling with Elmo, Beauty and Merel to the primary school at MICS, the air was full of noises of people working in the fields. Men cheered their oxen pulling the plough, and children joined their mothers and grandmothers in working with the hoe in the fields. Holes are made, seeds are dropped, holes are covered and prayers go up for good rains and affordable fertiliser.*
>
> *Yesterday afternoon the first good rainstorm hit Macha. So today people plough and plant. Last week we brought 1,200 kg of seed maize from Choma to Macha for the workers working on building and maintenance at Macha Works. Just then the soil was still very, very dry. Today the earth looks different, with muddy paths and messy roads. One big rain storm makes all the difference. People are working in the fields, working quickly from sunrise until they go to their work in the hospital, the schools or the many works at Macha. Every piece of land is being used.*

The Encyclopaedia Britannica defines 'subsistence farming' as: "a form of farming in which nearly all of the crops or livestock raised are used to maintain the farmer and his family, leaving little, if any, surplus for sale or trade" [online]. I would prefer to use the term 'existence farming'. The communities exist thanks to farming and farming defines all parts of life. It is at the core of the existence of the Macha community.

To understand the dependency on farming, one must appreciate the reality here. This morning alone, I counted four power outages of the electricity grid, and power has been off since 05.45 hours. I am writing this text on my computer while running the generator. There are no banking facilities in Macha, and business loans are not readily available to people in tribal lands; to hardly anybody in Zambia actually. Heavy machinery and other production assets can only be bought in major towns, which are often hundreds of kilometres away from our rural area. Fuel and other consumables are

not readily available. Most supplies need to be 'imported' from other clusters of activity, like towns. Transport is hardly available, and, if it is, it is very expensive. So much for technology.

On the other side, the perils of the economic trouble in the world are hardly known to people in Macha; its effects noticed only when taking a long-term view of the future, which is not a prime feature of the local culture. It is all going by as an iceberg in the far distance. An analogy is climate change: Africa is the region in which the impact of climate change on agriculture is predicted to be the most severe. However, only a few in rural Africa know about climate change are preparing for what is to come. I contemplate the possibility that rural Africa might become empowered to manage this and to form an important part of a solution to climate change.

About 20% of sub-Saharan Africa's GDP is generated by agriculture. In many countries, agriculture is the main source of employment. Our next chiefdom, which is called Chikanta, has very poor infrastructure (no electricity or means of communications whatsoever). It is further away from centres of activity than Macha. Yet, it is renowned in Zambia for its production of maize. Yes, even maize for sale!

Unfortunately, food production in most of sub-Saharan Africa has not kept pace with the population increase over the past four decades. Lack of access to markets is a constraint on the agricultural sector across most of the continent [19]. Previously, harvested maize produced the seeds that could be used the following year. Now, with hybrid seeds, that is not possible, so cash-in-hand is needed to buy seeds. One has to put aside all these depressing realities and press on. So, today, people are again planting fields that were used by their ancestors, given by the chief to the family in the oral tradition of the land. When discussing this with a business person I met on the way, he told me:

> *When we are blessed with good rains, then we will harvest, and eat. Whatever happens with the electricity, heavy machinery, bank loans, buildings, and fuel, we will eat and live. Therefore, we go early morning, we dig and plant. And later in the season, weeding in the early mornings. We will eat, understanding the works of our own hands, like our ancestors did.* [1: 19 November 2008].

I look forward to innovations in agriculture. Although I am not an agronomist, I have realised the room available for improved farming. From my understanding and interaction with the community, the following possibilities could constitute real progress:

- planting oil crop for local and small-scale production of bio-fuels, growing a diversified economy;
- introducing new crops like sunflower and soya beans, and stimulating crop rotation and thus the yield of the land; and
- improving local production of healthy, High Energy Protein Supplement foods, especially for those affected with HIV.

I contemplate that progress is possible and desirable. Sustainable progress is about the 'human measure', so that change is based in a collective understanding and comprehension, and is aligned with and preserve the local culture. People farm to support their existence. This is their primary sustenance of life. Let's put our hands to the plough.

Culture Shock

On 14 November 2008 [1], I wrote that I saw two ladies sitting at the Library and Craft shop in Macha. They are from Mabombo area in Chikanta Chiefdom. The previous night they had travelled the 60 kilometre distance over near-impassable dirt roads. They come to try to sell their locally-crafted Tonga baskets and will go back with money to pay for transport, their children's education, clothes, and other goods that will help them in daily rural life. I went to greet them, and I was invited to sit with them and we talked.

It reminds me of what a long road it has been to come this far as a community; I have had to learn a lot, and I continue to learn every day. First of all, I had to get rid of my drive *to help*. In this inclusive environment, everybody is geared towards helping each other, and this includes geared towards *helping me*. I had to re-assess the virtues of rationality, as in the rural contexts I dwell in. First and foremost relationships, *relationality,* is what it is all about. Further, I needed to reorient myself from looking at goals set by answering 'what?'-questions, to goals that are enshrined in answering 'who?'-questions.

My Western sense of individuality also needed to go, as in rural Africa the individual is defined as being part of the collective, the community. And on it went. Next to go was my understanding of (legal) security. A deeply-rooted African understanding that 'I am because we are' was not easy to embrace and reconcile with the Western way of things. It required re-routing of my perception of security away from individual security to security based on the quality of my relationships [1: 20 Jul 2009].

To be able to participate in community relationships, I needed to understand what *authority* means in an African setting. I have come to understand that authority is

rooted in the responsibility to secure that all people take part of the community and are protected by it. Authority is, therefore, something to be received, while power – although it deceivingly looks the same – is something that is being taken. My initial drive in Macha was to accumulate and introduce practical tools to get the job done – to use the *power* of technology. But I was soon challenged by this environment, where one acquires the resources, including tools, for a job only through tested relationships and the tacit or explicit approval of those in *authority*. I had to realise that I had to submit myself to the relationships in the community and to the powers entrusted to those in authority as the legitimate community leadership. Any attempts to eclipse this, would make any project fruitless. Authority and community are deeply intertwined. I observed this as follows:

> *Community is the first level that provides accountability; it offers the environment in which we can formulate our thoughts. This accountability guards against maverick and individualistic views. It provides a check against selfish and self-serving conclusions by those who lack the perspective to see beyond their own circumstances.* [1: 10 Mar 2010]

And so I learnt (and continue to learn) on the job. I learnt that the 'who' is more important than the 'what' and that many initiatives may not succeed because they are wrongly oriented: on things, rather than on people.

> *It appears that often stuff (the what) is put into communities without thorough consideration of people (the who).* [1: 28 Jan 2011]

It is a privilege to sit and chat with the ladies from Mabombo. In these short meetings in passing, I learn important lessons. One thing I have noted is that here in Macha the question is not 'How do you do?' or 'What do you do?', but 'Who are you?'. It is a fundamentally different question. The question, I reflect, seems to indicate more an interest to work out the relationship rather than to weigh up a social or economic status [1: 17 Jul 2009].

All these intricate details matter. In my experience, it can take a considerable length of time to become a member of an African community, and experiences from my previous 'non-rural African' life were unhelpful. An important barrier to *being together* was removed when I realised that my 'default' linear view on *time* clashed with the more corkscrew or circular notion of time in rural Africa. To begin with, I was mainly motivated by developing opportunities towards the future. It all became more holistic when my appreciation grew for the community, where people work from wisdom and knowledge distilled from experience. I recognised that it is almost inevitable that new

researchers in rural Africa go through sometimes severe culture shock and strain in their personal lives as they adjust to the local environment.

One case in point is the experience of time. When travelling vast distances over single lane roads of varying quality, one appreciates distances. Covering 300 kilometres a day is a significant achievement.

> *And when covering large distances with a family, while tenting as we go, to keep cost down, in challenging conditions – for instance 130 mm rainfall a day – one encounters many varied uncertainties. We came back 3 days later than planned but here nobody minds or comments on it.* [1: 12 Jan 2011]

This experience contrasts interestingly with observations from our local talent in Macha who visit the West. They mentioned the time factor as one of the most powerful differences they noted. In the West people keep time and this seems to be more important than the relationships themselves. This is in direct contrast to rural Africa where relationships have priority over everything else [1: 12 Jan 2011].

On a literacy scale, Macha is a mixed environment, with medical, agricultural, educational and juridical entities that only partially utilise writing. However, in the larger area, rural community members have little exposure to texts. They primarily make use of oral communication. It has been a particular challenge for me to shift from a culture of writing to an oral culture. I wrote on 3 April 2009 [1]:

> *Of course, what you see – what you think you see – influences how you act. Living in an environment different than the one a person grew up in is something 'to get used to'. Especially for me, living in an oral communications environment, so radically different than the culture I grew up in, needs lots of time for contemplation and study of the culture. One has to be able to see reality from the perspectives of the local person, the common perspective, as defined by the prevailing culture in the area. And that understanding is mostly available in oral communications format, with emphasis on stories.*

It is by talking that the news spreads. It is moving to see that opportunities in Macha are drawing people from far away. The ladies from Mabombo come with their hands full of goods they have made. In the process, they chat with people from Macha and learn about the developments that are taking shape. It is in the relationships that they sustain that they confirm what is important and expand their ideas. They will go back inspired by fresh ideas for their own communities to reach their collective and individual potential; empowered by what they have seen with their own eyes.

The meeting of cultures of foreigners from the West and the local community is wrought with misunderstanding:

> *In rural Africa, foreigners are still mythical creatures, considered equal to having money. People from wealthy countries – and, remarkably, nationals from major towns, arriving in private vehicle – are considered as having unlimited resources, and consequently approached as such.* [1: 31 May 2011]

On 31 May 2011, I observed that:

> *Due to the cultural divide, local and non-local people are hampered in interpreting answers to questions from each other. Knowledge of social codes and structures are imperfect, and understanding of the context, within which 'who communicates what', 'how does communication takes place', and 'why does communication takes place' is limited. Therefore, assessment of answers is heavily challenged and underlying reasoning is often validated only after a long time of observation.*

At Macha Works, anybody coming 'to help' has to report to local management for any interaction. Not all 'helpers' wanted to do so. Observing the interactions with some that came to help, on 23 May 2009 [1], I wrote:

> *Seeing short term helpers come and go, it becomes interesting to attain a view on the effectiveness of this activity. Some have come and worked but their work evaporated when they went or shortly after. Others came and worked, and their legacy continues to exist and bloom. This stark difference in sustainment, I think, can be linked to the mindset, the attitude of the helper from the outset. It seems that generally it is the work of those coming with a servant heart that has remained. Those whose motive was to edify the local community, to serve wholeheartedly, have been most effective. They focused on being a blessing and did not focus on bringing home a good report or on pleasing others outside of the local community. Many made silent sacrifices to be able to come, put the needs of the local community first, and accepted all the arrangements made by the local community. They did not ask anything in return, and their names are still known. They earned the love and respect of the local community. These ones truly influenced lives in rural Macha. Those who came with an attitude of 'knowing what to do' had limited effect.*

This quote shows that for foreigners, alignment and respect for the environment is linked to the sustainability of their presence and interactions. Cultural sensitivity and reflection is necessary to identify social structures, learn from culture and assess one's behaviour and actions with respect to the local realities. Although the short-term alleviation of practical needs might be a result, without sensitivity to the roots of social behaviour, foreigners cannot be effective in a collaborative addressing of the structural aspects of realities.

Internet in Macha

On 19 November 2008 [1], I asked myself the question: "Can ICT contribute to our community in Macha?" I am an engineer and my fingers were itching. As a doctor, the work of my wife would be very much enhanced if she could be in communication over the Internet. I had thought much about the ways of connecting Macha. On the said day, I realised how ICTs made another big impact on our community and our family. At 17.30 hours, our daughter Merel – 8 years at the time – sat behind her newly acquired gift, a full size piano keyboard, glancing at the computer screen in front of her. Through the Internet connection she was able to hear and see what her teacher Kristin Shoemaker was saying and showing her, over 15,000 kilometres and 8-hours-time difference away.[161] Diligently she played on the piano keys for the first time, keenly watched over by her teacher in her music studio in Lakeville, near Minneapolis, USA. Merel played "kitten are we, cute as can be, playing the keys, meow", and other rhymes.

We live as a family in rural Africa. This has advantages and disadvantages for our children. I saw our daughter taking piano lessons today over ICT … there are no words to describe how I felt. Wow, Thank you to technology! This is life to the fullest!

The New York Times headline declared "If Your Kids Are Awake, They Are Most Probably On-line" [21]. The article continues: "the average young American now spends practically every waking minute — except for the time in school — using a smart phone, computer, television or other electronic device" [*ibid*.], apparently more than seven and half hours per day. Here in rural Africa I do not know any kid that fits that description. I witness young people visiting from the West in a state of shock when they experience our limited throughput on the Internet. They hardly comprehend life before we got connected, which was only a few years ago.

When we set up camp in rural Africa there was no means of communicating. Most of the places I visit today have neither Internet nor mobile phone networks. Children grow

[161] For an academic appraisal of what we called 'ePiano' [20].

up in rural Africa unexposed, without comprehension of a connected world. This all goes way beyond a generation gap.

There is need for exposure and the use of communications by children in their formative years. That is also true in Africa. African children and young people must be prepared for, and involved in, the information society and beyond. In Macha, we are trying it. I have slowly tried to participate in the setting up the Internet in Macha.

Information and communications technology became available and accessible in Macha. Most professionals in the community were able to use this connectivity to communicate with family and friends and do online studies. Through peer-to-peer communication with others, the quality of work improved. One could even start thinking about 'efficiency' in rural Africa as personal effectiveness is enhanced. At the time, we ran between 4 and 10 Gb a day through the Internet from this rural village. That is almost a DVD full of information flowing through this rural area every day. It was only a few years earlier that the sole means of communication was by the weekly post batch or by radio, with data connectivity of 300 bits per second a few times per week [1: 19 Nov 2008].

I continued to record the way in which the internet is changing Macha. It seemed to have had a positive effect. These were some concrete examples of how the Internet was changing Macha, due to the new important opportunities it is providing to local talents from the village:

- Esther Kalambo was a certified pastor in the Brethren in Christ Church, after a number of years of hard study 'at' a college in the USA, connected from her home in Macha. She did so while uninterruptedly serving patients in Macha Hospital and the rural community at large;
- Fred Mweetwa was well underway in his Bachelors studies in social sciences at the University of South Africa. He did so from his tiny room in the Ark, while continuing to serve as an emerging leader in Rural Community Development;
- Jonathan Sitali was studying for a Master's in Public Health from his house in rural Macha, while continuing to serve as medical doctor at Macha Mission Hospital; and
- in Mukinge, long time matron of Mukinge Hospital, Lynn Hacker, had commenced studying an MBA online [1: 19 Nov 2008].

The primary-age rural example school, Macha Innovative Community School, has computer education from reception class, which was being replicated in other primary schools enabling:

- on-line chats on experiments and science lessons between rural secondary level schools and Western schools; and
- students from Zambian universities were joining the Macha Works while in tertiary education [1: 9 Feb 2010].

On 19 November 2008, I wrote down my observation that most professionals I know in these rural areas are now studying online, or have plans to do so. This development in the minds and skills of local people will have lasting impact on society. The everyday life of most professionals in Macha was now intertwined with the rest of the world. Sending and receiving e-mails is a continual routine, as is searching the Internet for answers too. The exchange of pictures of medical cases to check with colleagues was nothing special anymore. We are all connected through Facebook and Instant Messaging; we post, discuss, and put Standard Operating Practices on Intranets. Local and online file servers, document servers, and application servers do their job, and Internet libraries are open 24 hours a day, 7 days a week. Some even buy cars in Japan, and all my flight tickets and most hotel bookings are done online. In Macha, it is now news when the Internet is down, not when it is up. It is like tap water, after its introduction, one only takes note when it is not flowing. Not everyone in Macha is directly connected. In fact, most people are not yet connected to, or using, the Internet, just like many do not have running water or a main power connection. But they use the Internet through others in the community who are connected [1: 19 Nov 2008].

I have noted that the effectiveness of the formal training activities in the field of ICT in our African environment, a formal way of teaching, seems less effective than informal ways of obtaining an education. This observation is being strengthened by observing the informal interaction of local talent on social networks on the Internet, such as Facebook, or specific Twitter hashtags. I see technicians at LinkNet acquiring ICT skills and growing in stature at breath-taking speeds in the predominantly informal setting of Macha Works. Conversely, they slow down considerably and lose drive when going through often costly and time-consuming formal training classes based on Western models [1: 9 Jun 2010; cf 20].

The Excruciating Costs of Internet in Rural Africa

Looking at budgets for the operations of Internet in rural Africa, the costs of Internet bandwidth are large and excruciating. Strangely, it seems to be one of the least known or understood hurdles in development. It is difficult to accept that we pay thousands of USD per month for Internet connections with speeds that the West considers ‘peanuts’. In the West one gets 1 Mbps connectivity wholesale for less than USD 20 per month. For us in landlocked Africa, such a connection costs between USD 3,000 and USD 4,500

per month wholesale. For lesser speeds and shared connections, significantly higher prices are calculated. Basically, in rural Africa, people pay thousands of times more for Internet connectivity then one pays in the West [1: 10 Feb 2009].

There are not too many websites that mention this fact. In reviewing the pricing of satellite capacity, comparisons are almost impossible. When preparing for our entry into Macha over six years ago, I spent a year studying pricing and service options before being able to make an informed decision. Cost/benefit ratios are hidden in the plethora of prices/offers and quick overviews do not show the multiple issues involved. Since we have been in Macha, the situation on satellite capacity pricing and availability has significantly deteriorated. For instance, since 1 January 2009, prices have gone up at least 10%. Current high prices for access to satellite technology, which is crucial for Africans to connect to the Internet, are seriously problematic.

Satellites are being launched and (sea)cables being floated to connect Africa. However, we have not seen a decrease in prices. We continue to pay well over USD 1,000 per month for a dedicated 128 kbps connection. The ever-growing demand for bandwidth – even to be able to keep doing what we already do – effectively means the cost of service continues to rise [1: 15 Sep 2010].

The causes of the high price of bandwidth are known: investors recuperate their investments first. The costs of transporting 'the last mile' (or, in our case, the last hundred kilometres) is the next hurdle. Quotes for terrestrial connectivity between rural areas and the 'backbone' in urban areas are surreal – multiple times the cost of bringing the (international) bandwidth to that urban area. And, thus, a 1 Mbps committed connection, costing less than USD 200 per year in London, still costs us more than USD 80,000 per year. Additional costs include the equipment, the cost of transport, and the cost of local staff performing operations and maintenance. We have witnessed that maintenance of equipment raises major hurdles to the performance of ICT in rural areas. Although the connectivity is much needed to satisfy the life-saving needs in our rural community, raising this kind of money locally is inconceivable.

These experiences demonstrate that the Internet is not adapted to many communities in Africa. A more fundamental question should, therefore, be asked [1: 31 Mar 2009]. While the current trend is: think big, the current Internet fails to reach many. Is it, therefore, possible to include these communities in the design and development of the Internet? Maybe the definition of the 'next Internet' could come from the grassroots level in Africa? The social networks for grassroots-level interaction, utilising the multitude of technologies and possibilities available, could empower interaction across geographical and cultural divides?

The reality of excruciating Internet costs in disenfranchised communities appear to have not changed since my first assessment in 2002. On a daily basis, I observe valiant efforts to keep connected, to access and use Internet services that facilitate the works of professionals and individuals alike. Even in 2017, I observed the installation of two new satellite dishes to connect remote hospitals in Zimbabwe, so that health professionals could download e-mails for the first time, with direct results for, in this case, a 12-year old patient getting the right treatment. However, right away, we were discussing the cost/benefit ratio again.

On a daily basis, I interact with 'local talent' to learn from their struggles to keep their communities connected, to keep their software updated, and to participate in finding creative ways to gain access to services, in an effort to keep going in their resource constrained environments. Several times a week, I am invited in discussions on how to connect professionals and individuals to be able to use Internet services.

The underlying business principles appear not to have changed. The integral costs of service remain obscured from users. Although in certain situations the absolute cost per bit might have lowered, the real costs to be able to use digital services remains excruciatingly high in many parts of Africa, especially in rural areas. Due to the difficulties involved in accessing commercial information and the different ways in which connectivity pricings is structured, the comparison of the digital transmission of bits and bytes by network providers remains a comparing of apples with pears. The changing nature of Internet service provisioning in daily practice results in the need for more data to be transferred for a usable access. I observe an increase in the incidence of updates, upgrades, and patches and the absolute size of the files is also growing. Even when linked to an operator, user experiences change frequently as operators often change their 'bundles' due to network management or for other operational, regulatory, or commercial reasons.

Conclusion

This chapter provided narratives on the introduction of technology in the African setting of Macha, Zambia. It provides an indication for African engineering and its agency. Based on my participation in the setting up of internet in Macha, I identify some of the key challenges involved. Critically, I identify cultural mismatches, compounded by a fundamentally different worldview, as major hurdle. In this worldview, the quality of relationships takes priority over introduction of 'things'. I also observed that the introduction of new technology is not possible, unless there is a demand for it from within the local community and the local community is invested in it. Investment by the local community is a transaction that involves the community and its leadership; it is the

collective realisation that this technology will contribute to the community and advance it as a whole. Without such a collective understanding and the blessing of the people in authority, who are charged with the responsibility to protect the members of the community, proposals for the introduction of new technology have little chance of succeeding.

Unfortunately, the mysticism that surrounds the visits of foreign experts often results in a mismatch of communication, which is compounded by the lack of awareness of many foreigners that African worldviews prevail in Africa. These worldviews are rooted in practical matters, such as the wear and tear, the lack of western-style resources, the difficulty in maintaining technology, the different perceptions of time, different needs and the priorities involved in sustaining life, and the interdependencies of people in the community. These factors often lead to a mismatch of engineering and technology in which African approaches to engineering remain invisible and unrecognised.

In resource constrained environments, like Macha, the understanding of engineering comes from its interaction with people. I have learnt that 'good practices' in relation to the use of ICT depend on the 'good practices' of people. Although without engineering there is no technology, I have learnt that engineering should be subject to people and aligned with the culture and actions in ways people 'have reason to value'. So, what are these ways, and how can the development of technological interventions be aligned with the ways of people? This is the subject of the next chapter.

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Chapter 8

Macha Works Methods and African Paradigms[162]

Contents

[162] This chapter is based on a combination of published book chapters and papers as they are cited in the chapter. The work is based on original research conducted by me, on which I reflected with my co-authors. For the purpose of maintaining the flow and consistency with other chapters, 'we' has been changed to 'I' throughout when referring the authors.

Introduction

I came to realise that regular methods of interventions (which are often imported from the West) generally lack a sensitivity to the mismatch in the worldviews that underlie such interventions. I began to wonder whether the methodology itself was the cause of the mismatch in the projects resulting from such approaches. I started to look deeper into the way practices are guided when introducing technology in rural Africa. The problem, I felt, was that problem-solving and solution-oriented approaches were entering the rural setting with preconceived ideas of what the problems were, what the solutions could be and what the role of the community should play in all of this. The agency of the community was subsequently undermined, with the result often being the disengagement of the community. Therefore, before further engaging with the introduction of technology in Macha, I reflected on the way in which this could be done in a manner that would be respectful of the community and its agency. This reflection on the methodology was undertaken as a participatory process, engaging with the community.

I developed descriptive and abstract models by trial and error, using my own *being*, in situ, as well as a reflexive methodology. I recognised that in communities change takes place through improvisation, not innovation.[163] In previous work [3], I argued that improvisation ensures alignment with contextual practicalities, that all relationships are in play and are strengthened, and that the production or introduction of technology is relational and appropriate, both in time and place.

With some approaches I tried to engage with the community and then watched what happened. I was learning from their responses. In this way, by comparing different actions and responses to it, I started to understand what matters to the community and when there would be engagement and when there would be withdrawal. Two principal ideas emerged from this participatory engagement with the community. Firstly, it matters how the community sees the world and an intervention that is insensitive to the community's understanding of the world has a weak foundation. Secondly, I understood that what is perceived as 'ethical' may differ in important ways. The idea of charity brought to rural

[163] This insight was strengthened when I read Zimbabwe's National Health Strategy, where, although "[t]he hospital information systems need to be harmonised and fully computerised with all departments, equipment and patient flow properly linked electronically." [2: 50], the Ministry notes "[s]ignificant investments in health system strengthening are necessary for the health facilities and other service delivery and coordination platforms to function optimally. [...] new innovative programmes such as e-health are *implemented to enhance and not to disrupt what has been working so far*" [2: 61, italics mine].

communities from a hegemonic perspective (driven by the attitude 'we will help you with your problems') is mistrusted in the rural African communities I studied. Such attitudes are perceived as masking political actions embedded in dominant perspectives held by outsiders who lack an interest in the community and do not understand what the community finds important and why. I realised that such trust requires a radically different attitude – one in which the readiness to be part of the community, to understand it, and to award full agency to it is a starting point for any successful intervention.

I also realised that it is very difficult to do this. A radical engagement with the community requires long-term commitment; it requires giving up acquired certainties and privileges and necessitates a reversal of commitment to the community itself. It requires an authentic engagement in which one is fully engaged in the purpose of the community. My findings of the steps involved are set out in the Macha Works! Model.

Methodology of Macha Works

The Macha Works! methodology [4] emerged from reflections on community discussions on the ethical engagement of 'outsiders' in rural African communities like Macha. In the methodology, I endeavour to deal with the issues related to the outsider's 'disposition' (the temperament of the outsider and any preconceived ideas they bring with them – what is inside the person), the 'outset' (how something began, including the context when it began), and the consecutive 'positioning' of the outsider (in the context, in time and place, in the authority structures, and in the community), which are part of any community engagement and which can influence 'outsiders' to become 'insiders'. Being an 'insider' is crucial to be able to gain a contextual understanding of the community and for interactive participation.

The Macha Works! Model [4] was developed in a series of meetings with the Macha Works' leadership. We would identify and discuss the components of the processes that we observed worked in practice. I would summarise those discussions in slide presentations, which I would present on behalf of Macha Works during meeting with stakeholders or visitors, in the presence of the leadership of Macha Works. After the presentations, we would sit together and discuss the content of presentation and ensuing discussions and the comments made by the participants in the meetings in which the presentations were made.[164] I would change the slides and the story accordingly. Also,

[164] An example of such a presentation can be seen at https://sites.google.com/a/machaworks.org/20090522-ieee-12/Home/change-process This presentation took place during a meeting of Zambian engineers to celebrate 125 years existence of IEEE, with engineers from all over Zambia visiting Macha Works in Macha on 23 May 2009.

when traveling outside of Africa, I would present the slides in academic and non-academic settings. Upon my return to Macha, we would discuss the settings and the reactions of those presentations and, when needed, amend the slides and the wording of the presentation. This process was most active during 2006 and 2011. After such an encounter with Gerard van Oortmerssen (a promotor of this thesis) in Macha, I published an academic write up of the Macha Works! Model in collaboration with him and we presented it in the setting of Internet web-science in the presence of Tim Berners-Lee, the inventor of the Internet. However, the discussions on the models –its basis, content and wording – has never stopped.[165]

Precondition 1: A 'calling', or desire to fully engage

The first stage of the Macha Works! methodology deals with the issue of a 'calling' or purpose. This stage provides an indication of the basis of engagement. An explicit understanding of the circumstances, activities and events during *the start* of any intervention or activity defines its ancestry – or its relational foundation. Knowing *who* the activities descended from providing explicit knowledge on the embedding of activities in (the founder's) social values and epistemic virtues. Further, there is a need to know, for *each person involved*, how the process of introduction took place – or who introduced who and when. This links an intervention with collective histories and sets the embedding of people in their guiding authority. Therefore, the way in which an engagement starts has an enormous impact on the way consecutive interactions are framed and how collaborations work in the community (cf. Chapter 2). After introduction by an authority, the testimony of a newcomer is crucial for the community to assess the positioning of his/her inputs in the community; this testimony defines the position of the inputs in the relationship within the mesh of relationships in the community. The calling or purpose of the engagement with the community is shared and tested at the entry point. It pre-sets all of the engagements, determines with whom to engage, and necessitates a clear commitment to the environment, including the community. The resulting sense of engagement drives developments. It provides the source of energy for improvisation, to endure setbacks, and to overcome barriers along the way. Being 'called' gives the person who seeks to engage with the community the necessary authenticity to connect with the members of the community, fuels optimism, is the source of dreams, and provides a sense of excitement and hope, which can drive collective progress.

[165] An example of this ongoing discussion is the participation of Fred Mweetwa (Macha Works) and Joseph Bishi (Murambinda Works) at the second 2nd Summit on Community Networks held, alongside the Africa Internet Summit, at the invitation of the Internet Society, 25 – 26 May 2017 in Nairobi, Kenya.

Precondition 2: Commitment

This calling is supplemented by explicit *commitment*. Commitment allows for, and ensures, reciprocity between the person seeking to engage with the community and the community. Stakeholders do not primarily commit to time constraints or periods. In relationship-oriented societies in rural Africa, there is a common understanding that any change will take whatever time necessary to allow embodied knowledge to develop. The length of this time period depends on many variables (for example, time, opportunity, events, and so on [5]) and cannot be defined upfront. Phases of progress can be understood using the analogy of growth seasons. A season can be defined as the period that exists between the *dream* (or vision or shared calling) and *seeing* it realised in an embodied presence. Therefore, commitments should ideally cover long periods and be linked with the phases of life of individuals.

In rural Africa, I observed that most externally-introduced projects are based on explicit time planning with specific time periods for achieving various aspects of the project. However, experience has shown me that these prescribed periods are usually too short. A season is needed to be able to ensure stability in the network of relationships and engagements. In a relational, African environment, this implies that the whole system and all of the stakeholders sympathise and commit for at least a season. Without such commitment there is little basis for success.

In Africa, circumstances force communities to live on a resource edge. The margin of error is razor thin; therefore, communities do not have the luxury to experiment, which would raise the chances of failing. If change is regarded as only having the ability to produce temporary gains, commitment from the community is bound to be subdued. However, when change is perceived as affecting the community permanently, discussions are energetic and commitments are swift.

Change Element 1: Observe

A multitude of experts come to work at Macha and in some of the other areas I have spent time in. Some came with an explicit, pre-set agenda, others with an open mind, to observe and learn. Periods of engagement spanned one week, several months, and even years. Of course, effectiveness varied widely. Some laboured, but their work evaporate shortly after they left, whereas the legacy of others continues to exist and bloom. I observed that enduring results were more likely to remain when considerable time was spent in observation and participation to maximise the learnings from community engagement so as to serve in the community. Those whose motive was to edify the local community were most effective. Unless specifically invited for applicable expertise, those who came with an attitude of knowing what to do had a limited effect. Those who asked what others could do for them soon left and their interventions did not take root. Those

who observed the needs of the local community *in situ* and accepted all of the arrangements made by the local community, earnt the love and respect of the local community and their interventions were more likely to be relevant and accepted by the community and, therefore, to leave an enduring mark.

Thus, the first element of making a change is to *observe*. It takes considerable time and experience to be able to see, hear, and understand what is happening in a community. Such understanding comes from active conversations and interactions with people in the community, as well as thorough and reflexive checks and balances. Observations should be made of the whole system in an effort to recognise the underlying currents, which high-context cultures take for granted that everyone else knows [7]. Respectful observation leads to knowledge and trust. Keen observation is essential in building long-lasting relationships, which are, in turn, of vital importance in communities that perceive time and space differently. Only when relationships exist can contributions be put forward.

Change Element 2: Model and share

Proposing community deposits (see Chapter 3) in the change element 'model and share' deals with formulating proposals in the community – that is, if improvements or change are sought. At this stage, contributions address the issues observed with a good dose of contextual creativity. Lessons from history or other similar situations are heeded, and stakeholder analysis, strategic analysis and holistic thinking are applied simultaneously. This is a highly creative and analytical phase.

Change Element 3: Wait

Theories of change do not usually encompass the notion of waiting. However, rural communities recognise that everything has its appointed time, or, as Victor Hugo saw it: "An invasion of armies can be resisted; an invasion of ideas cannot be resisted" [8:410]. There is a window of opportunity in which all aspects of activities are aligned and activities take place quickly and practically [9]. In the Macha Works! Model, one waits for the right people and the right time. As ideas can only be entertained when embedded in the local network of relationships, given the right conditions, *local talent* will stand up and take responsibility, but this process is difficult to plan.

I have observed in Macha that 'thingification' can go very fast – when 'the time has come'. In practice, I noticed that preceding discussions often taking periods of several years. Then, when the time is right – with discussions matured and the right people being all together at a moment in time – tangible artefacts emerge. For instance, this happened at the radio station; The community had discussed its wish to operate a community radio station and the relevant stakeholders and authorities were looped into these discussions.

Already a building was available with room set aside for the radio station for quite a while. Then, when an architect happened to visit Macha for a short period of time and he draw up a design according to the report of community leaders one day, the building supplies present were made available, artisans present made the work their priority, and the building activity started. In a collective effort, the structure supporting the radio station was finished within days. Another example was the transfer of a computer network room; When all discussion had concluded about the necessity of the transfer, and all engineers prioritised the transfer, one day, the complex matter was done in a culturally adapt manner – in this case relying on maturity of discussions, oral records on the networks, and embodied knowledge set in people – flawlessly, the transfer took place in record time. This culmination of people coming together to achieve a long-awaited result, in record time, I have also observed in other areas; for instance, in Zimbabwe in 2016, a high-quality draft curriculum for a new academic school providing university education was produced in one week, all after extensive periods of discussion and *waiting*.

Waiting is the opposite of making a plan and 'getting started' on a due-date. Although enforced action can yield limited results in the short term, I have noticed that it does not produce long-term results or sustainable progress. Thus, this phase involves waiting for ideas to be shared at the relationally-right time and for the knowledge of 'the change to come' to be shared with and by many people in various positions so that it is internalised by the community. Subsequently, there is a need to wait for someone to come forward and take up the action.

Although this process may be slow, I have experienced that after testing the calling, making a commitment, observing, modelling and sharing, and waiting, when the right time comes and if the intervention is deemed worthwhile, someone will come along and take action. Waiting in this way requires faith in the strength and abilities of the community. When it has taken a long time and when the exploratory interactions in the community are still ongoing, one can 'throw a pebbles in the pond'. But one should not make too many waves, because the key is to allow local talent to stand up and take up their (community-) assigned role. At this stage, it is important to be in continuous contact with the right people – the backers of the intervention – but not ask for attention (for the proposed activities). The time of waiting is a time of expectation and of perseverance. At this stage, one allows for a shared mandate, commitment, and space to develop.

Change Element 4: Mentor and connect

After the waiting is over and local talent have stood up to take action, there is now room for improvisation and change. Calling and commitment are put to the test. Probing questions are asked, but one is also involved in the creation and holding of space and encouraging local talent and the community to proceed. The local talent will require

guidance from the *ancestors of the activity*. The wait is over and the activity is ongoing. During this time, tools are used, resources flow, and rapid progress is experienced. The difference in dynamics between the waiting period and the fast-paced implementation phase I recognise as typical in the community-driven approach in the Macha Works! Model.

Change Element 5: Show progress

The final element of the Macha Works! Model is to show progress, quickly. This is possible by facing challenges with a 'can do' attitude and overcoming scepticism. During the window of opportunity, implementation is fast, and by sharing exploits, evolution is established. In general, resource-limited environments are flooded with promises, without seeing them materialise. Therefore, in the Macha Works! Model, rapid visible results are conceived, which, in turn, engender community interactions, in which engagement and discussion are needed to ensure embodied knowledge.

The Flow of the Macha Works! Model

The Macha Works! Model can be understood as a workflow, in which the preconditions (willingness to fully engage and commitment) are followed by five steps of engagement with the community. In Figure 6, I produce the Macha Works! Model, in a flow model, while mapping it with the overall research methodology as presented in Chapter 2.

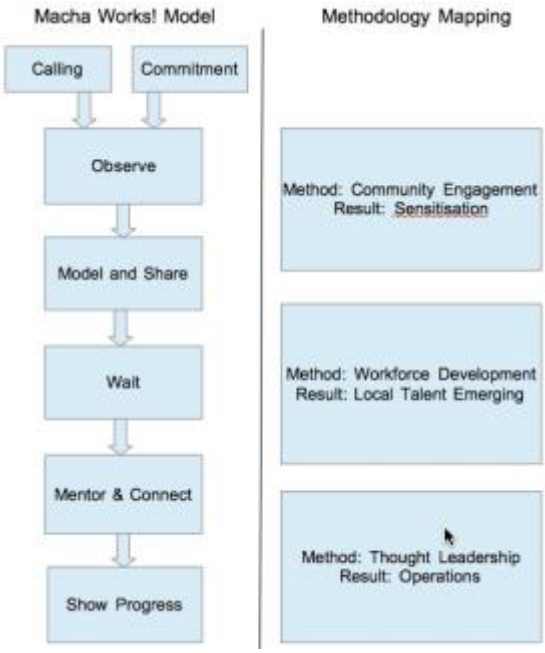

Figure 6. Macha Works! model and methodology mapping, amended from [6] by author

The Macha Works! Model has emerged from empirical observations of what happens when technology is introduced in a rural setting. These include the following observations:

Trust

Foreigners entering into an African rural community have a big disadvantage. While they are seen as agents of the colonial powers and sometimes regarded with mythical powers, they are not seen as connected to the community. They represent a being that is determining the community in a fundamental way – such as the higher powers do, but they are not engaged with the daily earthly obstacles that the community is grappling with. A foreigner who wants to have long-lasting impact, therefore, should gain the trust of being interested into the real life of the community, and the ordinary day-to-day bread and butter issues that determines its existence. In order to gain this trust a foreigner entering the community with the aim to help build new possibilities for the community needs to show desire for authentic interest and engagement with the community and a long-term commitment to do so. These are preconditions for trust.

Preconceived ideas

Many projects have come and gone. They left something behind, often 'white elephants' that lacked an ability to be maintained after the outsiders had left, as these

were not sufficiently relevant to the local community and basic preconditions to maintain such projects were not in place. As a foreigner, one enters a community with many preconceived ideas. An ability to reflect on these and to learn from the daily reality as it shows itself within the community is important to understand what are perceived as problems by the community and, more importantly, what solutions can constitute a long-term improvement to the community.

Time

Processes of learning, testing and piloting take considerable time. It is only *over time* that one can learn what is possible and how difficulties can be overcome. The time in the rural African settings I studied is perceived in a very different way than is the case in the Western industrialised urban setting. The difficult part of many new activities is a lack of time, the lack of ability to wait and see what happens, to understand the process of appropriation by the community that has its own complex dynamic. The ability to wait is a crucial part for a successful intervention.

Agentic engagement

The possibility of the community bringing forward its local talent, its support and its ability to test new ideas is crucial for a long-lasting ownership of the identification of problems and their solution. Any activity that is introduced needs to be inclusive to align with and incorporate what the community is engaged in already and has to offer and to ensure that the community has the ownership of the process of change involved in the introduction of the activity.

Demonstrating progress

Many interventions are presented as a black box. Something goes in and something comes out, in a causal sequencing. As the community is not involved in the intermediate processes, how can they understand it? The involvement in the sensitisation, conceiving, demonstration, productions, facilitation and mentoring of intermediate steps in the process are crucial components for any activity if is to be sustainable and durable.

The Macha Works! Model was tested in Macha, Mukinge, Kalene, and all other communities that have been engaged with Macha during the process of introducing technology interventions. In addition, the model has been explained and tested in academic interactions within Africa (e.g., with the University of Zambia) and further afield.

Macha Works Methodology in Practice

Upon the emerging understanding the Macha Works methodology, it became the preferred theory-of-change in the conversations and practical interactions to support other communities that were involved in the process of interacting with the developments in Macha while endeavouring to introduce various technological interventions like the ones that were working in Macha. The Macha Works methodology was being introduced during the meetings in subsequent communities, for instance, in Mukinge, Kasempa District, Zambia. At these meetings with stakeholders from the community (such as the chief), the hospital, the church (both in Kasempa and Lusaka) and the many local schools, the model was shown and through conversations the practical implications and reciprocal commitments were explored. One of the results was the mutual desire to identify and empower 'local talent' from the community to interact with those who came from the 'outside' (i.e., from Macha, in this case). Local talent are positioned to be the prime carriers of 'embodied knowledge' (see Chapter 16).

The Practice of Engagement: The Integral Development Model

In the engagement of academics and practitioners, one is almost always involved in a network of local and extra-communal relationships. Therefore, it is opportune to scrutinise the relationships between local talent and outsiders. This work was facilitated in collaboration with an extra-local person to do an ethnography of both entities (the local community and the outsider who has entered the community). Jasper Bets undertook such an ethnography of Macha Works [10] in the community of Macha. In this work he observed the community, its interactions, and the interactions of leaders in the community, and my daily behaviour in this setting. From the outcomes of this work, the Integral Development Model was derived. This conceptual model was published in 2013 in a paper that I co-authored with Jasper Bets and Anne-Marie Voorhoeve [11]. The model provides a locally-derived road map for integral development. It envisages engagement in intervening activities in the community (according to the Macha Works! Model) in which local talent and mentors act during three distinct stages of engagement: (1) thinking, (2) practice, and (3) progress. This section provides a synopsis of the main parts of the Integral Development Model.

Thinking phase

The *thinking* phase aggregates the body of thoughts around two focal points:

- **Human (interior) development:** Aligned with Don Beck and Christopher Cowan's [12] description in *Spiral Dynamics*, this concept leans on the idea that people develop through different identifiable stages, depicted as a spiral of growing complexity in

values. Thus, consciousness develops along a growth path, in which each stage incorporates the previous stages as people advance and include the former. Applying this idea to Macha, it was recognised that to progress in the complexity of values, mentors should play an enabling role, creating and holding the space for local talent to act. Mentors operate from a third culture perspective. In addition to their personal value system – with its beliefs or ideals and intentions – mentors are open to local value systems and are always ready to align their actions with local needs, as communicated in local cultural expressions; and

- **(Exterior) holistic approach:** To ensure inclusivity, mentors operate from an integral perspective. Activities are set-up horizontally (incorporating a broad range of inputs from a variety of fields of interests), instead of vertically (focusing on 'in-depth expertise'). Therefore, activities involve simultaneous investments in different disciplines such as education, leadership, and culture, thereby vitalising and enforcing each other. The intentions and behaviour of individuals and collectives, and the existing structures and systems are seen as interdependent.

In the thinking phase of the Integral Development Model one recognises that no challenge or intervention can be addressed in isolation. Different factors, such as socioeconomics and agency, and the inclusion of unquantifiable and intangible impacts, are taken into account. Therefore, both the exterior (the structures and behaviours) and the interior (the intentions and values) are sources of valuable inputs. Many inputs are intangible and appear during interactions and conversations with people; they necessitate the presence of trust as seen in the Macha Works! Model. Trust requires an open view, respecting and understanding the local value system(s), and being sensitive to the local community, especially to the values and intentions of people. Trust diminishes the distance between a mentor and the local community and, thereby, enables feedback and the ability to reveal and use valuable decentralised information. Change must harmonise and reconcile all inputs to realise integral and sustainable progress.

Practice phase

Building on the body of thought provided by the thinking phase, the *practice phase* focuses on the life conditions in the community. Here, practical engagement interacts with the environment in which people reside. By holding an open view, operating from a third culture perspective and with keen interest in the interior of the local community, activities are aligned to the local intentions and culture. The focus is to embed any change in life conditions in the structure and systems provided by the community. This is realised by 'holding the space' for change to come.

Transformational change involves the local community evolving from being reluctant to change, to being willing to change, to being capable of change. Or, in other words, from

being a *closed community* with its thinking in an expressed value system and seeing no (external) need for change, to an *arrested community* willing to change but still with barriers to overcome, to an *open community* capable of change.

As I witnessed living in rural Africa, with rapid globalisation, rural areas of Africa are increasingly being influenced by urban areas and the capitalist elite. This experience involves intensifying interactions with different sets of value systems and cultures. This exposure causes local life conditions to change, possibly sensitising the community to evolve from having a frozen value system, to slowly starting to become willing to change, but still with barriers to overcome. Mentors play a crucial role in 'holding the space' for change to come. At this stage of the Integral Development Model, the focus is on engendering the life conditions that break down the barriers to change and that transcend and convert conventional thinking into breakthrough action. In other words: if everything needed for change is already there, it only needs to be given the space to emerge.

Focus points for holding the space are:

- **Long-term vision**: Change in general, and especially change in intentions and values, is a long-term process;
- **Guide instead of lead**: Operating from a third culture perspective the mentor positions him/herself as a guide instead of a leader, providing time and space for local initiative and talent to emerge. This ensures that an open view is held;
- **Local initiative**: To allow for local initiative and talent to emerge, time and space must be provided and the mentor must act in a guiding role;
- **The part and the whole:** Acting on behalf of the entire organism for both the greater good and individual growth, while bringing alignment towards a higher purpose[166]; and
- **'Eehee' feeling:** This refers to being passionate about the work and contributes to the quality of performance. It encompasses authentic behaviour, being accepted in the community, and being supported within existing local structures.

Progress phase

The thinking and practice phases result in *progress*. Progress is defined according to the local value system and culture. In Macha, I witnessed such progress as acceptance, agency and local ownership, and being able to celebrate any contribution. The mentor lives the

[166] Holding space and taking a guiding role and operating from the background does not mean the mentor is not allowed at times to take a lead position. In fact, when the healthy development of the local community is in jeopardy the mentor should stand up and act responsibly to secure the higher purpose.

life as part of the community and, thus, aligns him/herself to the local life conditions. S/he lives in an exemplary way to sustain acceptance within the local community.

The focus points recognised in rural Macha in the progress phase are:

- **Value relationships:** As the culture is one of collectivism and centres on relationships, efficiency is approached from a relational perspective, which needs time to build and maintain. Hence, a mentor must value relationships for progress to be made;
- **Show commitment:** To strengthen relationships within the local community, a mentor must be able and willing to recognise and value physical presence at important community events;
- **Here and now:** Rural life focuses on activities in the here and now, with traditions providing valuable guidance for today's activities;
- **Paucity:** In a resource-limited environment, abundance cannot be shown without having been allowed to do so and all resources are shared with the community. Therefore, showing abundance can jeopardise acceptance and existence within the local community;
- **Suffering and sacrifice**: These are perceived by the local community as normal and commonplace;
- **Recognising (local) authority:** The mentor should follow the decisions of the local chiefs and the government, as having their enduring support is crucial to the impact of the mentor's activities and acceptance within the local community; and
- **Beliefs and practices:** As religious life plays an important role in Macha, activities should be aligned with local life conditions and local (Christian) values should be respected and incorporated.

For change to be sustainable and embraced by the community, all involved must feel ownership. This is achieved by ensuring that everyone has invested. Holding the space for local talent and initiative to emerge and not telling people what to do (see Chapter 2) ensures that local ownership is not undermined and local talent are not disempowered.

Application of the Integrated Development Model

The Integrated Development Model was developed when observing daily life at Macha Works. It came about by reviewing activities and outcomes, academically sensitised to theories of human existence, by Ken Wilber and Richard Barrett in this case. When discussing the derived observations with the community, it proved helpful to discern how

interactions and narratives on technology took shape in a manner that respected the local context, social structures, culture, and desires for progress.

Developments at Macha Works have been a purposeful and open development, its activities have been open for scrutiny and debate, aimed to discern collaborate approaches, from the outset [10]. When exposing the Integral Development Model to the wider world, it proved instrumental in explaining the framing of observed behaviour in the interactions between experts or foreigners and 'local talent' that is understood to be instrumental to favourable progress in Macha. It provided indications for the value of relationships and framed behaviour that – from other paradigms – might look less productive. The facets described gave a textual grounding and contributed to the acceptance of the validity of the community's collaborative work in Macha, in a wider context. Explaining developments along the lines of this model proved helpful in framing discussions on intervention and the assessment of the developments, especially in relationship with donors. For instance, the model was used in academic and practitioners settings of explaining the activities and measurement of its pursuits.

The Integral Development proved especially helpful in communicating the positioning and involvement of various actors – for example, local talent and foreigners – in times of much actions or during times of 'waiting'. The model was used for presentations to technicians visiting Macha, e.g. presented during the IEEE 125 years meeting of engineers in Macha in 2009, at presentations to computer experts in Zimbabwe during their annual conference organised by the Computer Society of Zimbabwe in 2013. Often, people interested or involved in Macha Works would be confused about the particulars of the management of activities. Especially from foreign perspectives, the level of 'management control' would be looked at frowningly – with a readily available judgement of incapability – which would change in amazement after reviewing the outcomes and 'clean bill' after each years' external audit. The Integrated Development Model proved instrumental in restoring confidence in a rational, as the model proposes a list of contextual sensitivities and behaviour and leads to adjustments in the positioning of actors, when necessary, to ensure all aspects continue to be taken into account.

Distinguishing Paradigms in an African Setting

The Macha Works! Model is a deposit of a theory-of-change rooted in the experiences of Macha Works. The Integral Development Model is also a deposit, depicting a framework that provides insights and idiom into the various roles and dynamics in times of engagement and intervention, when different narratives and actors meet in 'real world' interactions, as sensitised upon by the research questions. However, upon introspection on the workings of these models and their reception in the many settings – local, national,

and international – especially in contemporary realities of inequality, I noticed the apparent incompatibility of the views of those indigenous to rural African realities and those visiting or being introduced to them from 'outside'. I noticed some highly diverse views of 'reality'. In my deductions, these often incongruent views were best explained by an approach to the (value conscious) empirical worlds from a paradigmatic perspective[167]. Such a perspective – even when paradigms are incommensurable[168] as hinted at by Thomas Kuhn [15] – provides a notion with which to explain how different people can experience reality fundamentally differently, while being in the same setting. Subsequently, different views on reality solicit a different response to events, although these are all located in the same context, circumstance and time frame.

In Chapter 5, I argued that the presentation of non-Western views in academia is often met with responses framed in dualism, often set in natural sciences or resulting from Orientalism. However, in trying to search for ways to avoid such dualisms, in efforts to discover pluralisms, I started to recognise multiple consciousnesses. Among these, I have identified three main ones: a local, African consciousness, a global – mostly European – consciousness, and a spiritual, metaphysical consciousness.

To make sense of actions and responses in rural Africa, in conversations I started to review and appreciate the need to sense which paradigm an interlocutor was coming from: which reality in which paradigm was active, in what way and when? I sought out to bring an interpretative reading of events, communications and behaviour. The sensitivity to, and questioning of, paradigmatic positioning of interactions with people interlaced with communications as they are proposed to vary in so-called high-context and low-context cultures. High-contextuality, Daniel Marantz proposes [16], involves bidirectional/interactive orality and embodied knowledge in Africa (see also Chapter 3). The complexity of this empirical exercise was exacerbated in terms of how to translate my findings into academic English text, which (implicitly) deconstructs and decontextualizes reality and connects derivations to a Western epistemological location that is foreign to the local African reality (see Chapters 2 and 3). I sensed that the

[167] Reviewing their conflicting insights, Jenna Burrell and Kentaro Toyama noted that a paradigmatic review enriches ICT4D research. They stated that "an explicit recognition of their paradigmatic differences could help build bridges between disciplines by allowing disagreements to remain as such" [13:82]. Here I expand this view in the transdisciplinary setting to recognise the paradigmatic differences between indigenous people and external practitioners.

[168] The view that paradigms are fully incommensurable – impossible to measure or compare – has been contested by several authors. Dennis Gioia and Evelyn Pure argue for the existence of metaparadigmatic perspectives [14]. Whether or not there is overlap in paradigms is not my interest here. Of interest is the realisation of the existence of various paradigms under a metaparadigm, which implies the existence of several fundamentally-different sets of paradigmatic understandings of reality, and them being commensurable.

demand for so-called 'value-independence' (see Chapter 2 on the implicit demand to align with Western values) overlooks local knowledge enshrined in a local morality, which could lead to research and the presentation of 'knowledge' being seen as acts of appropriation (on this see also Chapter 3).

With paradigmatic sensitivity, it comes as no surprise that in the African contexts variations exist in the interpretation of contexts, circumstances, and behaviours by indigenous and non-indigenous peoples. This is of direct relevance to the interpretation of the research questions for this research. Subsequently, I challenge the notion of the existence of a single paradigm, especially in sub-Saharan Africa. Although there can be many paradigms, my daily and intensive experiences and assessments, *in situ,* have led me to the hypothesis that three main paradigms exist and operate at the same time in sub-Saharan Africa. These paradigms I call the 'I', 'We', and 'It' Paradigms.

Discussing paradigms is full of methodological challenges, as this activity involves interacting with metaphysical frames. We can only approach the outskirts of 'knowing' and what is understood as 'human nature'. If paradigms are incommensurable, as Kuhn seems to indicate, is it possible 'to know' anything about other paradigms? I deduced from studying literature that Thomas Kuhn [15] says 'no', and with him many others. A 'knowing' *of* and *from* other paradigms, Kuhn claims, is not possible. I contest this view as, in my experience, there can be an indication of such knowing, certainly in reflexive research and in a person endowed with various embedded positionalities. Reflexivity, I argue, has allowed me to signal the presence of 'something', which I herewith conceptualise as a 'there is something else, another paradigm'. This reflexivity is aided by my continuous exposures and positionality, mostly in African environments, and the accompanying invitation by members of the community to participate in community life.[169] Subsequently, living the life in rural Africa with its challenges and breakthroughs provides an initiation into certain aspects of the 'knowing'. This knowing interacts with my being allowed access 'as a community member'.

I conceptualised the following different paradigms:

[169] The issue of positionality is crucial in this section. Without living in the community, I argue, it would be impossible to witness and appreciate other forms of reality. For me, it took long-term embedding and years of contemplation and real-time interaction on my thoughts and understandings to grow some confidence in relation to what I present here. Likewise, the explicit 'invitation to participate' (see the start of Chapter 1) provides 'unique access' to the community, giving a form of reflexive triangulation, in which I can test the outcomes of my thinking. Without such unique access, I would be even more reluctant to share these deductions.

I Paradigm

In the 'I Paradigm', I recognise people who approach reality from the perspective of the 'individual self'. Here, the individual is central to the perception of reality. The individual is an entity in an atomistic universe. In this paradigm, the individual – almost as an object – regards agency as the ability to act relative to external entities.

In this paradigm, I recognise certain aims, such as for the redemption of *rights* and the establishment and maintenance of a personal and individual locus of control. This paradigm is relatively well understood in Western culture as it permeates Western literature and culture and underpins Eurocentric views on capitalism, militarism, Christianity, patriarchy, modernism, and academy. It appears to culminate in *individualism*, the concept of a *social contract* and the capitalist economic system. In its shaping of African realities, this paradigm is expressed in social constructs like class formation, the division of labour, and human rights. The I Paradigm is also reflected in culture, spirituality, and epistemics; in the use of Western language, aesthetics, and pedagogical information; in dualistic views on the ecology; and in spatial hierarchies, as well as views on gender.

In conversation, this paradigm is apparent when it centres around assessments like "what is the effect of this for *me*?", and on transactions like "What do I have to provide and what do I get in return?".

We Paradigm

After much encouragement by my African friends[170], I started to recognise a 'We Paradigm'.[171] In the We Paradigm, a *social personhood* can be recognised. Here the 'self' is not seen in an individualistic way, but in a communal manner, as part of a universe of coherence. In the We Paradigm, activities aim to strengthen social cohesion and bolster collective unity. I perceive the We Paradigm when analysing indigenous structures[172] as it connects with land, history, and birthing. The We Paradigm culminates in

[170] Encouragement was received through subtle comments, such as "ah, you are becoming an African", or introductions like "he does not look like it, but inside he is an African", and when receiving encouragement in conversations in the community when trying to conceptualise narratives within the 'We Paradigm' that stay within and resonates with that paradigm.

[171] The labelling of the paradigms is inherently problematic as the 'We Paradigm' could invoke the language of the 'I Paradigm', where one reifies and meaning is set in value-laden (Western-centric) terminology. However, as explained here, I do not mean 'we' as a collective set of 'Is'. Possibly, in a subsequent conversation and research, different terms can be found to disempower the pitfall of using one (western) logic to interpret another logic, to find different ways of 'saying' to shift the emphasis.

[172] Indigenous structures encompass a specific understanding of, for instance, law. Here one regards communal law as the leading law practice [17], which fundamentally differs from Western law (as expertly explained by Foucault [18]).

communalism, social bonds, the balancing of rights and duties, and reciprocity. The We Paradigm can be encountered in communal communication structures, communal knowledge systems (for example, communal law), conviviality and 'embodied knowledge'. This paradigm is being taught in the community and involves activities that the community requires to be executed, in the manner that they *should be*[173] executed, and so forth.

In interactions, this paradigm is apparent when they centre around conversing and acting together without regards of a monochromic concept of time or how a particular resource came to be present. Also, the paradigm finds its expression when the word 'I' is understood to be meaning 'we', based upon the role and authority bestowed upon the speaker.[174]

It Paradigm

The 'It Paradigm', I deduce, involves a religious-constituted belonging.[175] In this belonging, metaphysical world activities (or non-activities) relate to the purpose of life [19–21]. This paradigm can be found in religious undertakings, often scripted in rituals or devotionals (e.g., worship and prayers or interacting with reverent texts of 'religions of the Book' or engaging with spiritual intermediaries). In my experience, this paradigm is accessed through both worship and revelation. In practice, one can see this paradigm in renderings of Rhema, holism, piety, and religious affection.

The 'It paradigm' I have often experienced in settings where a community expresses a common understanding of the perceived miraculous nature of a given event, for instance in the onset of rains. Also, I encountered the paradigm in religious or cultural settings and when discussing mystical knowledge (for example, on mermaids) and metaphysical

[173] Here 'should be' refers to the cultural and moral grounding of the paradigm. An example of the expressions in this paradigm are words of appreciation and respect, attitudes, body language and signs, e.g., the position of the eyes, etc.

[174] The understanding of the word 'I' is of significant consequence in the assessment of the presentation of this thesis. Depending upon the expressed paradigm from which reasoning takes place, therefore, my use of the word 'I' in the presentation of evidence and its deductions can be indicating a point of individual observation or, in the local community, be considered as a position of defiance as one does not expresses outside of the framing (of expressions) of the collective. In the first part of this letter, I ask for amnesty in the latter case for the cause of presentation of this thesis in a Western setting.

[175] As mentioned in Part I of this work, it was through self-observation during periods of travel and returning to my African communities, and analysis of my intro- and retrospective arguments, that I realised that while my rational-thinking 'knows' something to be fact, my relational-thinking reflexively 'knows' such facts to be different in the African context. Through this realisation I came to the realisation of the substantiation of this paradigm. This is similar to experiencing supernatural presence in worship or recognising miraculous interventions (e.g., documented by Jasper Bets [10]).

experiences (for example, of a common experience of God's presence during a period of worship).

Paradigm Switching

In rural African environments, I regularly noticed the ability of my friends and, when I learned to recognise the phenomenon, subsequently many others to *switch* paradigms. For instance, I noticed leaders to be expressing a clear position on issues under discussion, in meetings where individual stakes in the matter were being discussed, in the I-paradigm. In community settings, I would notice the same leader to interact according to his/her delegated role, e.g. as a responsible family member, in the we-paradigm. Lastly, when encountering the same leader in a church setting, I could observe the leader in an attitude of submission or worship to the deity. In each of these settings, the expression of 'self' would be different.

I observed that paradigm switching can take place almost instantly in many of my African interlocutors, possibly because all paradigms are trained and exercised regularly – the I Paradigm at school or in the so-called formal economy, the We Paradigm in African communities, and the It Paradigm in church or during other metaphysical encounters. I have witnessed many people in their various roles and communities surviving and reconciling realities by switching paradigms.[176] Success in the various sub-Saharan African environments appears to relate to the ability to switch effectively, quickly and expertly.

The I Paradigm, in which the individual is the unit of analysis is the dominant model of the academic tradition. It recognises the individual as the main actor in shaping his word and the main decision-maker concerning his life. The individual has agentic power to shape his worldview and to act according to this. A We Paradigm does not recognise individual knowledge as knowledge. Knowledge is what the community knows as a community. In my extensive research, I have experienced that a Western-based academic Theory of Knowledge has great difficulty to recognise this paradigm, given that it is based on an individual notion of personhood. An It Paradigm also falls outside the Theory of Knowledge of the dominant academia which is rooted in a humanistic tradition, and does

[176] In my own case, it can take me several weeks to be able 'to experience and understand' realities in a different paradigm. This is especially the case when returning to Africa from encounters in the West, or intensive encounters with Western people inside Africa. It took me a long time to wean off the Western paradigmatic understanding to appreciate the African understandings and behaviours. I am not (yet) able to change paradigmatic understanding quickly, it takes me deliberate and conscious effort to switch paradigms and see reality through another paradigmatic consciousness.

not generally recognise the actorship of a divine power and human beings as a unit of analysis.

While reflecting on his life in Africa, a person in Harare commented to me: "It feels like I have a shredded personality".[177] After this revelation, I tested the paradigm switching hypothesis with him, the person said the model was helpful as it explained his experience and how he felt compelled to behave in disparate settings, like urban and rural settings and in Zimbabwe and South Africa. This example describes my general experience in testing of the idea. Hence, I tender that paradigm switching exists in African settings where, I argue, multiple paradigms are active and productive at the same time. However, contemporary discussions ask for 'new paradigms', or 'paradigm shifting' (as supported by Kuhn's arguments [15]). From the evidence generated by Macha Works, I deduce that paradigm shifting, indeed, takes place, as any view of reality – as in culture – is a generative process. Although 'paradigm shifting' is happening in all paradigms, its discourse seems to have been hijacked by an Orientalistic reasoning (see Chapter 5). However, I would tender that paradigm switching is a profound ability that allows many people in sub-Saharan Africa to live and reconcile sub-Saharan African life with the utterly complex, colonised and globalising world.

The rural community, which I researched in Zambia and Zimbabwe, mainly operates in a 'We Paradigm', with the exception of leaders aligned with institutes set up along Western models that are based outside the local culture [36]. In the transdisciplinary research I conducted in the community, many methodologies seemed to be implicitly assessing realities from an 'I Paradigm' and, therefore, were not well suited to the purpose (see Chapter 2). Only approaches connected with transdisciplinary epistemologies that allow for a highly-variable approach – those in the participatory realm, such as critical ethnography – seemed ethically and environmentally sound, with possible alignment in the 'We Paradigm'.

I would like to add here that the perspective of paradigm de-links (culturally-constrained) behaviour from the thought patterns of people from a certain group or geographical location. It links thinking with belief systems and systems of thought. This means that within a group of people, or within a given geographical area, various paradigms can exist. However, many mind-boggling questions arise about methodology. When one researches within a context operating in the 'We Paradigm', is it possible to interact meaningfully through research conceptualised in an 'I Paradigm'? If a researcher trained in the West with an individual ('I') paradigm does entertain specific queries, how do those queries play out in the 'We Paradigm'? In a 'We Paradigm', is it possible to adopt a positivistic

[177] Discussion with a young person at a sporting event at a school in Harare in 2014.

'scientific approach', which implies 'distance' from the subject of the research for a position of impartiality? The exposure to disparate paradigms appears to have caused a double or triple consciousness in some African academics and researchers; one must discern from which consciousness one is operating from.

So far, I have not been able to find any indication of 'paradigm switching' as a theory. The relevant literature appears to indicate that paradigms are all encompassing and one cannot, therefore, entertain several paradigms in one person. However, I would be amazed if anthropologic or ethnographic work did not provide indications of the existence of paradigm switching. I just have not found such work (yet).

Conclusion

I triangulated the working models and deductions on paradigms with my reflexive ruminations on my experiences in my many embedded positionalities, for example, as a person born in the Netherlands. I deduce that what I am experiencing, and being *initiated* into by the community in Africa, is not identical to my experiences in Europe or North America.

Of course, the Macha Works! Model, The Integral Development Model, and the concept of Paradigm Switching are working models, and I am quick to say that these hypothesis must be investigated further. Such investigation might benefit from more contextually-aligned methodologies and theories, ideally undertaken by well-enshrined African researchers. I look forward to being enlightened by the many others who I hope will grow these ideas further (or replace them with something better, in the true spirit of the extended case study method).

I am glad that the models expressed here have already been shared and are gaining traction during academic studies, as inputs to meetings in engineering in Africa and abroad, which, to me, is evidence of their agency. Further proof of the evidenced exists, I propose, in the mere fact of the availability of many co-authors for the writing of the respective community deposits on the subjects matter.

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Chapter 9

The Misalignment of Foreign Technologies[178]

Contents

[178] This chapter is based on a book chapter called 'African Engineering and the Quest for Sustainable Development', I co-authored with Munyaradzi Mawere, published in 2016 in Theory, Knowledge, Development and Politics: What Role for the Academy in the Sustainability of Africa? [1]. It is based on original research conducted by me, on which I reflected with my co-author. For the purpose of maintaining the flow and consistency with other chapters, 'we' has been changed to 'I' throughout when referring to the authors.

Introduction

Having identified the opportunities and challenges involved in introducing Western technology in narratives from a rural African setting and beyond, and having presented abstract constructs deduced in participatory review of interactions in relationships, especially in view of interactions with foreigners and experiences in the physical and spiritual realms, I now embark on providing evidence of how actors deal with current existence in a connected world. In this and the following chapters in Part II, I present various angles of empirical realties, as framed by the research questions, to illuminate how engineering practitioners, those that shape technology, are hampered in their (colonially affected relationships) by, as we will see, a misalignment of a foreign technology with context and practices in rural Macha.

In the previous chapters, I have identified the vulnerabilities entailed in introducing technological projects in rural Africa. The question is why this process is so prone to difficulties. In order to analyse this question, I combine my experiences in Macha, in Lusaka and other African settings, with my reading of the literature. For the literature review I used my collection of literature on relevant articles that discuss technology in African and other non-Western contexts. Literature was accessed through a combination of purposive searches using keywords addressing 'technology' and 'Africa' and subsequent snowballing [2] to press on beyond the apparent meanings.[179] A selection was made on the basis of the relevance of the literature for both theory and practice in an African place. I rendered both my experience and literature review into a narrative positioning an African engineering, which is presented in this chapter.

A starting observation from the review is that non-Africans dominate the mainstream discourse on technology in Africa, and in the world at large. The predominance of Westerners forces the conversation to conform to Western framings and a Western epistemic positionality, which in many cases short changes Africa and Africans [3]. Regarding Africa, the technology discourse is based on an essentialistic and rhetorical argument, while broadcasting a Western-specific ideological understanding of 'development impact'. The conversation is highly technocratic and its bifurcation sustains a colonial narrative [4]. In this chapter, I argue that the dominant, Western framing of the discourse on technology is debilitating and conceals the agency and practice of African engineering in African contexts (and elsewhere) where its outcomes could be of use.

[179] The collection is archived in my personal Mendeley database and contains over 4,000 documents collected since 2011. Further, I have assembled a topically-relevant library containing over 100 books and over 200 e-books, mainly in Kindle devices and computer applications.

The dominant Western-centric discourse monopolises the thinking, behaviour, and (de)construction, as well as reconstruction, of epistemologies and understanding of the meaning and value of technology in Africa. The discourse assumes Western technological superiority and masks its profit motives, partnerships with elites and vested interests. Meanwhile, critics of this discourse, many whom I have met in person, are often accused of ingratitude. Enshrined systems and processes that facilitate changes in technology deny African agency and disempower African inputs [5, 6]. This sabotages the efficacy of many African efforts, epistemologies and technical advancements. For a long time, African works have been consigned to the dustbin in favour of hegemonic epistemologies and technologies from the West. A critical look at the field of engineering shows that, in Africa, an extrinsic discourse is prevalent. This discourse continues to influence the development of techniques, skills, methods and processes used in the production of technologies worldwide. An example is the development of the fifth generation mobile telephone systems (5G), which is being heralded as a fundamental change in our thinking about mobile networks and wireless systems (see also Chapter 11). This aligns with the observation by Mahmood Mamdani [8] that Africa can only seek the crumbs while the Western elite sets the agenda and reaps the spoils. Similar observations are made by Francis Nyamnjoh who argues that:

> *In Africa, the colonial conquest of Africans – body, mind and soul – has led to real or attempted epistemicide – the decimation or near complete killing and replacement of indigenous epistemologies with the epistemological paradigm of the conqueror. The result has been education through schools and other formal institutions of learning in Africa largely as a process of making infinite concessions to the outside – mainly the Western world.* [9:1]

As further argued by Nyamnjoh [9], this kind of education has the tendency to emphasise mimicry over creativity. It is the same education that fostered the dominance of the West over colonised territories. There is a persistent practice of regarding Africa as a geographically unified, albeit separate region. This view builds on the racial views held by Comte de Bobineau and introduced and sustained by colonial powers through nefarious Eurocentric theories, which were meant to stereotype and subjugate the peoples of Africa and the marginalised groups of people as a whole [10]. Such thought compartmentalises the process of contemplation and recycles a practice that invites contributions on Africa from 'experts' residing outside the continent. At international conferences in Africa, I have noticed that the main speakers are flown in from outside the continent. At critical moments, foreign 'experts' are asked to speak about the latest developments and their 'impact on Africa'. In this vein, Africa is designated as an area 'lacking knowledge of a specific kind' (e.g., on appropriate

technologies). This links in with the idea that African borders represent boundaries of knowledge or 'epistemic fronts': Africa is considered to be a cold front that is inactive, therefore, incapable of effecting any meaningful change. On the other hand, 'foreign experts' represent a hot front that is more active and capable of instilling and effecting significant change. What this implies in reality is that Africa is regarded as in need of 'technical assistance'. Such conviction sounds eerily like the colonising call at the Berlin Conference: "let's bring civilisation to Africa", which motivated colonisers and missionaries to set off to the 'dark continent' in the nineteenth and twentieth centuries. Within Africa, the absence of African voices and the Western-centric orientation of technical information allows for a linking up of technical developments directly with imperial centres, as if Africa were still a colony [4]. This practice perpetuates the imperial dominance of the West over Africa.

In reality, African contexts and realities are highly diverse (see Chapter 7). They are authentic and often at odds with the realities encountered in Western environments. A common denominator in many African locales I studied is the perception of oneself as it emerges from the joy, wisdom and knowledge of community [11]. In these contexts, for instance, African economic behaviour does not focus on competitive segregation, but aligns self with social and communal identities. Such socio-centric cultural behaviour is embedded in ubuntu [12, 13] (see Chapter 15 for more on ubuntu). In many daily African practices and cosmologies, there exists a preference for phonocentric, oral communication [14], a desire for harmonious personal relationships, and an embedded understanding that 'success' requires sharing [15], supporting the success of others, and a long-term orientation.

The Suppression of African Voices

In Africa, I observed in institutions of higher learning I engaged with in Zambia, Zimbabwe, South Africa, and other countries, the academic education model – both in high school and at the tertiary level – often continues to be among the key instruments and vehicles for the 'westernisation' of the African continent [cf. 16]. This model mistakenly regards the start of colonialism as the beginning of development and, thereby, human progress. These persistent narratives condition thought processes, influencing students to think that some people are intellectually superior to others.

Regarded (and rendered) often as without agency, African practitioners and academics are particularly disempowered to influence the speech symbols, legal codes and, most importantly, values embedded in the influx of technologies that are designed in foreign contexts. This means that the conditions of their production must be carefully scrutinised. These conditions of production include the de facto exclusion of Africans

from participating in all aspects of (the science of) technology development, reaping the direct benefits of technological advances (for example, through the organic growth of scientific capacity and technical capabilities), accessing the general body of knowledge, and accessing related (financial) resources (e.g., for research). In most specialisations, a relative small grouping of corporate and academic elites monopolises technological developments. A clear case is the conceptualisation and engineering of information and communication technologies, which is dominated by corporate interests in Silicon Valley, California, USA.

In the case of promising talent, Africa is mired by the open migration paths for promising talent, who are keenly absorbed and assimilated in the dominant (Western-based) technology companies. This migration yields considerable benefits for the sending communities, through the remitting of finances by migrated talent (see Chapter 12). However, most of the people migrating from Africa find themselves estranged from their roots [17], and only a small percentage of them return to Africa or contribute to the strengthening of African engineering capacities [18, 19].

To understand Africa's technological agencies and African engineering, one must take into account Africa's history, the reason for the current geographical boundaries, and the long-term influence of the events that have ravaged the continent. On this note, I argue that one must reject the stigmatisation of African engineers as being only 'adaptors of existing technologies' and of African technicians as only 'maintaining the technologies that the West provides'. There is a need to seriously consider the contribution of engineers hailing from Africa and to urge their active participation in all 'global' activities in Africa and beyond.

Why Imported Technologies Do Not Fit in Africa

After realising conflicting observations in the Indian context, as introduced in Chapter 2, Kentaro Toyama concluded: "like a lever, technology amplifies people's capacities in the direction of their intentions" [20:28]. Toyama rightly understood that the social context determines the outcome of the application of any technology. One would, therefore, expect technology in Africa to be aligned with African worldviews and to address African needs, framings, and community processes. An accompanying discourse to explain 'African intentions' would provide evidence of African understandings of (local) needs and how proposed technologies are aligned with African contexts. Unfortunately, such discourse and technologies seems largely absent[180] despite the fact that they are

[180] A Zambian practitioner, commenting on the content of an international gathering of technologist and practitioners in Africa in 2017 messaged me the comment "unfortunately, the

urgently needed to close the epistemological and technological gap between the West and Africa. A superficial look at Africa and its modes of technological episteme reveals mostly imported technologies. Subsequently, Africans continue to be conditioned and constrained by the hegemonic discourse of Western engineering (and business) concepts, supported by an academy based on the dissemination of Western values and intentions [21, 22].

Given this lopsided discourse and the denial of African capacities, it is no surprise that imported technologies often do not fit African realities, especially the realties in rural areas. In many cases, equipment is inadequate, used in a manner ill-suited to most contexts in Africa, or not used at all. A poignant example is reported by the World Health Organization: only 10–30% of donated medical equipment is operational in developing countries [23]. Another example is the rapid malfunction of imported measuring equipment to monitor the availability and quality of the grid-electricity network in Macha [24]. As technologies fail, there is constant investigation into why the 'intended outcomes' were not achieved. Technological dividends have not been forthcoming. Such investigation often falls prey to the 'failing Africa' narrative, which involves the colonial loop of (1) condemnation ('there is lack of local capacity'), (2) brainwashing ('this is what is needed'), and (3) conditional resource provisioning ('there is need for assistance, on these conditions') (see Chapter 5 for more on this process).

One of the effects of the mismatch between technology and context is the growth of many divides. For example, analysis by the International Telecommunications Union shows that the digital divide widened by a factor of 1,000 between 2001 and 2011 [25]. Although such effects are recognised by various authors, the sheer foreignness of the social consequences in daily life in unfamiliar realities seems to strain the understanding of listeners and academics who do not reside in African contexts. The result is a lack of appreciation of the significance and disempowering effect of this mismatch of technologies on the part of both Western and African practitioners, in both the literature and practice.

Each specific philosophy of knowledge generates a different understanding of the distinctions between the West and 'the Rest'. The struggle for recognition of multiple forms of science – for instance, positivistic, reflexive, or African sciences – is fought in a geo-political academic realm. However, the ability to achieve a technological fit depends on the degree of ethnographic understanding of the local context. Such understanding is crucial for the translation of local intentions into the technologies that

meeting was donor-driven and showing off what foreigners were doing in Africa". During November 2017, I attended AfriCHI 2016, which was a valiant exercise to generate such a discourse, but, even there Western influence was looming and hovering the conversations.

amplify them. Contextual, embedded, and embodied knowledge is crucial to inform the review and gap analysis between the West and Africa.

Deconstructing Engineering in Africa

A vast array of inconsistency exists when engineering and technology span geographical areas with two or more worldviews. In engineering practice, a particular range of processes for clinical needs assessment are followed in the design of technological artefacts. These mostly take place in dedicated professional environments that are removed from the communities involved. Furthermore, the contemporary design of technologies is based on Western philosophy, which separates outward behaviour (in this case, the act of engineering and technology creation) from autonomous internal thought. This philosophy is inconsistent with most African worldviews [26]. In my study areas, the prioritisation of human autonomy is deemed self-centred and undesirable for community cohesion [27]. Within ubuntu, human interactions are focused on the establishment and maintenance of harmonious relationships. The concept of engineers being parachuted into foreign contexts to harvest information, subsequently disappear, and then reappear with shiny equipment is inconsistent with such an African value and its participatory and transdisciplinary practice. In Africa, dialogue continues at appropriate moments until the technology and the community are aligned and in unity [28]. The discordance of unaligned technology is amplified by the fact that the sequence of exposure to technologies in African socio-economic and political experiences is dramatically different from how technology has developed and taken shape over many years in the West.

When reviewing behaviour, intentions and needs in African societies, it is imperative to understand the political world that was implemented by colonialism (introduced in Chapter 5) and how this world still appears to exist. In such a world, the ‘settler’ assumed a dominant position and the ‘natives’ were subdued, often by suppression or even annihilation. The colonial system implemented policies preoccupied with such binary classifications. These classifications remain compelling and confusing even to this day [29].

If engineering exists to produce technology that is an amplification of human intent, as Kentaro Toyama claims [20], it can be expected that Western (trained) engineers build technologies that amplify a Western intent. The resulting tools, machines, structures, systems and processes can be assumed to be ill-suited to African contexts and essentially ineffective in meeting African needs. The nonsensical narrative that large parts of Africa are culturally backward, scientifically inferior and economically

incompetent; the lament that Africa has failed to achieve Western-determined norms; and the stream of failed technologies induce resentment and counter movements. Counter pressure mounts because of growing inequalities and deteriorating living conditions. This pressure feeds on Africa's long history of exploitation, oppression and servitude. The exploitation and oppression of Africans involves the use of imported technologies [30]. Counter pressures also feed on the mismatch between the promises accompanying the importing of (Western) 'appropriate' technologies and their disempowering outcomes.

The building of discontent constitutes a 'post-'colonial engineering crisis. Although this crisis appears not to have been recognised in the literature, it is evident that Western-trained engineers have failed to serve the needs of local and national African societies [31]. Cornel du Toit [32], however, states that Africa has always known science and has always used technology. In Africa, technologies are (re)constituted according to the communal experience. Through such assessments, Africans relativise imported technology use to link in with African customs. This counter response is triggered by an identity crisis forced upon many African communities by the growing exposure to foreign cultures through ICT and the subsequently transmitted cultural elements or systems of behaviour aligning with so-called traditional behaviour. Other counter responses are the labelling of particular techniques as 'alien' and the regarding of their effects as damaging. Subsequently, various groups in African societies attach a 'settler's agency' to certain (imported) engineering artefacts, with the result that such technologies are rejected. Such labelling could explain the mounting rejection of 'development work' being done by non-governmental organisations and the increasing barriers to the entry of foreigners involved in (engineering) research and development in various African countries.

A small portion of African engineers are academically trained in technology. These engineers mainly reside in urban areas and operate in the formal sectors of African economies. These formal sectors are relatively small. For instance, in Zimbabwe, only 6% of employed persons work in the formal sector [33]. Naturally, the formal sector exists by virtue of a dominant discourse. The formal sector operates in a modern or post-modern fashion and complies with Western-centric engineering approaches, which are enforced through exams and certification. Formalisation processes enlist institutions linked to the nation state within the boundaries that were set during the Scramble for Africa. The first laws and regulations that defined acceptable (formal) practices were designed and implemented during colonial times by foreign powers. Many of these stipulations have remained as they were [34]. The formal interest groupings and their social influence exist by virtue of political identities set by the 'settlers', without input from the indigenous population. As a result of these enshrined powers, western-centric

engineering processes and practices are prioritised over the recognition and distribution of local knowledge systems in Africa. This preference represents a continuing and even strengthening of colonial practice.

By their affiliation, Western-trained engineering elites have privileged opportunities to interact with western powers. However, enticed by their privileges in urban areas, many engineers remain distant from traditional practice and have little interaction with African indigenous knowledge systems. The 'colour bar' has been replaced by a 'powerbar', in which a privileged group of engineers act in isolation from those practising indigenous engineering in African societies [35, 36]. It is mostly in the informal sectors of the economy where one finds the practice of (and confidence in) African engineering practices. The informal contexts encapsulate a determined African agency and the execution of an engineering practice cognisant of the local cultural expressions and a history filled with African artisans.

The Distinctiveness of African Engineering

In African engineering, technologists align their endeavours with African beliefs, customs, and values and focus on enhancing social cohesion. They act cognisant of African worldviews, cultures, histories, and religions. African engineering links both artefacts and people in a holistic manner. It reviews technologies as to how the physical and social consequences benefit humans in their act of balancing the demands of daily life and relationships. Further, African engineering assesses how technology helps in the comprehension of the meaning of events by all involved in interacting with it at any stage of sensitisation, design, implementation, and operation [37]. African engineering aims to facilitate the integrity of African personhoods and societies, and benefits local knowledge production. It does not prioritise abstract benefits or foreign (business) models and is less interested in 'cause and effect' than in the actual happenings in the community. Further, African engineering does not individualise ownership, but regards everyone involved with its accomplishments as joint owners [38]. In contemporary settings, in a post-scientific manner, African engineering incorporates any available technique that is beneficial in the African contexts and discards the rest [39].

Based on its drive for harmony and holistic integration, African engineering has a remarkable ability to accommodate (not indigenise) divergent ideas. Thus, African engineering does not isolate itself from the world. At the same time, it does not subscribe to an ontological substantiation that detaches technological apparatus from people, to exist in and for itself. Many Africans subscribe to a relational ontology, in which the life-facilitating agency of technology and the inclusion of all stakeholders

determines it value. This ensures that both rationality and emotionality are in balance in the technological intervention and/or artefact.

Any academic theory is loaded with specific concepts of human nature [40]. As most technologies emanate from Western thought systems, there is a real danger of what Courtney Martin [41] calls 'reductive seduction' or what Chimamanda Adichie [42] recognises as 'a single story' to explain African realities. These can be compared to colonial practice, which manipulates facts through an 'out of context' illumination. Reductive seduction and a single story silence the contextual, indigenous view of reality of Africans. In this manner, Western models continue to shape the general understanding of the many African realities. Furthermore, the dominant discourse regards this chapter's understanding of African engineering as inadequate, because it lacks a solid foundation in (Western) 'science'. In a globalising and connected world, this faith in the West can only lead to more confusion. Engineering is not a Western privilege, nor is it a Western prerogative. Engineers exist everywhere and manufacture tools and shape the physical world. Facts emerge from, and must be assessed within, the lived environment and context. Therefore, African engineering must be interpreted from an African position. This necessitates the continuous development of theoretical knowledge from the African contexts, not based on enforced hegemonic thinking from Western points of view. The limited literature describing African engineering can be regarded as a sign that African engineering does not depend on, or ask for, Western acknowledgement.

Global (corporate) engineering focuses on activities in the cluster of geographical areas centred on African metropolises like Nairobi, Accra, Johannesburg and Cape Town and their greater areas. This leads to a strengthening of the contemporary carving out of imperialistic bridgeheads and centres, to the detriment of the continent. Further, this focus naturalises African engineering as 'engineers in the formal economy' and strengthens the focus on Western skill sets only. With their powers consolidated in the 'centre', corporate engineering uses an African engineer solely as a resource in the utilitarian exploits of the 'homo economicus', bypassing the needs and dignity of the homo situs [43]. This practice is geographically and philosophically far removed from realities in rural areas in Africa. There is need for a critical look at the ways in which the 'post-'colonial Western needs reproduce and reinforce colonially-produced entities as the mainstream engineer. This degrades engineers as if they are natural constructs, although they are the product of ongoing (colonial) history. An analogy of this thinking is the one in education, where Ken Robinson [44] vividly shows how the education system is purposely built to produce operators for a capitalist industry.

There remains a lopsided flow of information and severe information poverty in Africa [45]. This deprivation conditions Africans to accept, without questioning, the available and generic (Western) documents providing 'facts' from a Western positionality. Narratives, reports, and stories from Africa do not make it to the front, or they take years to be recognised as illuminating, if they ever are. This demotes African empirical evidence, as illumination and theory building takes place in the West. These foreign theories are used to mine for African facts and prevents African empirical evidence from sustaining theory building in Africa. For a long time, African engineers were particularly devoid of such theory building, while they are being influenced by a continuous stream of foreign theories. There is a fundamental difference in the methods many Africans and non-Africans use to produce knowledge [8].

African engineering harvests and beneficiates the local empirical knowledge base and feeds local theories. In the demand for justice and reciprocity in reporting on the empirical world, the referencing of empirical evidence and theories from Western sources seems counterproductive. There is a need to go beyond a simple critique or regurgitation of facts to re-interpret borrowed facts. In this way, African engineering can be recognised and Africa can be seen to progress, based upon embodied knowledge and embedded theories that illuminate old facts and core realities in light of previously un-revealed, and thus unconsidered, African contexts. This allows for an illumination in support of engineers practising within Africa, instead of foreign engineers being 'parachuted' into Africa wearing colonial or so-called 'humanitarian' lenses. This act of decolonisation requires an intellectual movement to achieve it.

Conclusion

The recognition of distinct African approaches and practices is critical due to the prevalent negative African self-images and a persistent mindset of dependency. African engineering represents a narrative of engineering practitioners in indigenous context, as derived from experiences of Macha Works and beyond, and consolidates the symbolic potency of the engineering act by Africans in Africa. This narrative is crucial to understand the actors in Macha, and others, in interactions with foreigners, which is the enquiry of this research. Although able to incorporate technologies from any source, African engineering does not regard Western engineering as normative.

Engineers cannot ignore the growing inequalities, poverty, exploitation and suffering of many people in the world. Colonialism and continued forms of economic (and other) dependency on the West, playing up where African actors meet in predominant western modernist discourse, are threating African identities. However, African

engineering can be an inspiration when it has strong and long-term roots in the human connection, operates in an oral culture, is free from Western constraints, is embedded in communities, and critiques exclusion and aggressive competitiveness. Therefore, such narrative is important to inform potential narratives of the future. Reliance on individual pursuits, which is typical of modernism, is foreign to the practise of African engineering. African engineering holds substantial potential for inclusive designs that incorporate shared beliefs, conventions, practices, and traditions. African engineering addresses the question ‘why’ in all its pursuits and regards the symbolic value of engineering exploits all as manipulations of the physical and psychological realms.

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Chapter 10

The Shortcomings of Globalised Internet Technology in Africa[181]

Contents

[181] Based on a conference paper by the same name co-authored with David Lloyd Johnson, presented at Africomm 2016, 6–8 December 2016, Ouagadougou, Burkina Faso [1]. This work is based on original research conducted by me, on which I reflected with my co-author. For the purpose of maintaining the flow and consistency with other chapters, 'we' has been changed to 'I' throughout when referring the authors.

Internet Technology in Africa

Global society relies heavily on the use of technology to overcome the imperatives of physical distance [2]. In particular, information and communication technologies are instrumental in connecting people, irrespective of location, in the so-called 'information society'. How the interrelationships between technology and society are assessed depends on the academic approach and philosophical perspectives one subscribes to. In his meta-analysis of various approaches, Wolfgang Hofkichner [3] observes an academy engaged in a battle of theories, mostly bifurcated into what he calls *projectivisitic* social theories informed by social constructivism and *reductionistic* natural theories linked to technological determinism. In the meantime, society moves on. Grand visions to 'connect the unconnected' are posed by corporations, development organisations and governments, based on the rationale that this creates economic growth and inclusive 'development' [4]. The proposed activities mostly address issues of connectivity, bandwidth and affordability [5, 6]. Subsequently, several countries in Africa have set goals for Internet access in their national laws (e.g., South Africa's Electronic Communications Act) [7]. In an effort to ease the use of their service platforms, technology producers pre-set the configurable aspects of equipment for provision of access to the Internet.

In this chapter, I aim to identify the specifics that determine general performance of Internet technology in Africa, for instance due to

- Africa's natural geographic position on the globe, with a focus on Southern Africa;
- the (colonial) heritage of the Internet protocols and architecture; and
- a dominant and one-sided development narrative, misaligned with realities in Africa.

By providing evidence from an African positional perspective on the natural and social effects of physical realities, embedded in the dominant technologies facilitating the working of the Internet in contemporary society, I shed light on the research questions informed by investigations informed by both natural and social sciences. Specifically, I present the materiality of what happens on the nodes where different narratives meet, where contemporary meaning is constructed in the physical realm, and how a potential counter narratives on African responses to these realities could look like.

Methodology

This chapter is based on longitudinal, transdisciplinary and mixed-methods research in rural Africa (see also Chapter 4). The methods include participatory action research on Internet access and wireless networks since the year 2000 and extended case method

analysis and technical laboratory work since 2010 [8, 9]. Most of the technical findings in this chapter are based on the retrospective analysis of data from the LinkNet network at Macha Works in Zambia, immersion in rural and urban environments in Zambia, Zimbabwe and South Africa, visits to various (rural) sites throughout Southern Africa, and a literature review. This research draws on laboratory simulations of the behaviour of Internet systems in rural contexts executed by David Johnson in laboratories in the USA and South Africa. In the ethnographic work that took place for this chapter, ICTs are considered to interact with multi-level and multi-actor realities. The patchwork of actors and dynamics are approached as being entangled in techno-economic, social and political processes in order to identify issues that warrant exploration. Specific issues, such as the quantitative and qualitative analysis of TCP effects, are assessed in the confrontation of reflexive ethnography and lab-based technical exploration.

Observations from an African Context

Many people in Southern Africa lack basic ICT access, especially people living in rural areas. Those in the development-scene (for example, ICT4D) and the corporate world (for example, Basic Access and Google Loon) seem to regard access provisioning as the last frontier: a market with opportunities for solutions [4]. This battle for the so-called unreached and underserviced rages on. The discourse appears to be mostly framed in foreign (Western) languages with foreign interpretations of values, in which interpretations of aspects such as freedom and democracy are at variance with community views on morality and participation [10–12].

The perception of reality in rural Africa is often far removed from the dominant epistemology in ICT-producing countries, such as the USA and countries in Europe [6, 13–16]. Andrew Feenberg [17] argues that technologies embody social constructs and are created by people for specific purposes. However, contemporary practice seems to turn this around, with technologies framing our social worlds [cf. 18]. The mobile phone, for instance, has been invasive, constitutive and transformative in Africa [cf. 19]. Kentaro Toyama [20] gives a vivid description of how ICTs force local worldviews, concepts and meanings to interact with foreign concepts and expectations, framed in foreign philosophies, concepts and language. Therefore, those dwelling outside the technology producing centres must cope with technology developed by foreigners in foreign contexts.

Tim Unwin, David Nemer, and others warn of the underlying clash of paradigms, which is resulting in the widening of the digital divide and digital exclusion [14, 21, 22]. Nicola Bidwell [23] shows how the continuation of a history of colonialism and meanings

embedded in ICTs is disruptive to local communication practices and results in a disconnect that reifies knowledge, disembodies voices and neglects established rhythms of life in African villages. Through ICTs, African communities interlink with a dominant, Western-centric view of the world, without — as Mark Graham [24] shows — much local content to interact with.

In previous work, analysing the network traffic in LinkNet's network in rural Macha, Zambia, it was found that most traffic in Macha remained within the village [25]. It was also shown how cultural challenges combine with environmental constraints, such as lack of electricity supply and skills constraints in support of local ICT practitioners [16, 26].

Within what Johan Galtung [27] calls 'centre countries', especially in the centre of these centre counties (for example, Paris being the centre of France), perceptions of Internet performance seem positioned as being 'uniform'. Such uniformity implicitly assumes the availability of relative low latencies[182], high-quality bandwidth options, state-of-the-art equipment and an abundant supply of electricity [28]. However, outside this realm, in so-called 'periphery countries' (for example, countries in Africa), especially in the periphery-of-the-periphery-countries (e.g., rural areas), realities are more diverse, with latencies high, bandwidth options low, a multitude of various equipment and technical performances, and electricity networks in short supply.

Sabelo Ndlovu-Gatsheni [29] shows how Africa harbours multiple, competing worldviews (see also Chapter 8). There is a highly-varied dialectic and a context in which multiple worldviews and various positivist and interpretivist approaches compete. As a result, African practices often contends with many definitions and meanings expressed in the same continuum [14, 30]. In the use of technology, these various ways of understanding are at loggerheads. Most technologies are created in a culture and context foreign to African settings. Susan Wyche [31] shows how users long for contextual designs – and have their inputs ready. However, technology producing centres have particular — often orientalistic [32] — views on human needs [33], among other things [34]. In short, as argued in Chapter 5, Orientalism combined with imperialistic practices have left their mark in Africa through the practice of colonialism [35]. Ongoing coloniality, in both the centre and the periphery, is a remnant of a history of domination, exploitation, and 'othering' [36]. Paul Dourish and Scott Mainwaring [18] argue that contemporary ubiquitous computing practices align with this colonial intellectual tradition.

[182] In communications, latency is understood as the period – or delay – between the moment of the sending and the moment of the arrival of a signal. Latency includes effects of propagation (with the speed of light being the absolute maximum), the characteristics of the transmission medium, processing times, and any other factor that affects or delays the transfer of information.

The facilities of ICT — both in their positive and negative aspects — are a significant fact of life today's globalised world. The technical performance of computer operating systems, network access points and Internet connectivity are framed and chained by the Open Systems Interconnection Model (OSI Model), with each layer and its interconnections influencing the final usability by technology users. My long-term experience with and observations of the introduction and growing presence of ICT in rural environments in Southern Africa has sensitised me to the complexity of the issues involved in this myriad of social realities. For instance, I recognised how technical nomenclatures and idioms and a whole range of methodologies developed in the West result in a myopic understanding [13, 14, 37]. It is when ICTs are actually used in African environments that the sheer complexity of the mismatch of design comes to the fore [15, 38–40].

Technical shortcomings in rural African Internet networks

In my daily activities in rural communities in Africa, and during my travels on the continent interacting with Africans outside of metropolitan areas, I have encounter an unabated stream of dissatisfied users of Internet access, network services and applications. Although apportioning guilt is not common in African cultural expressions [42], colleagues in Macha Works, network operators in the so-called 'pheriphery' and I constantly meet users who complained of a *slow Internet*. Whatever the case, whether ageing or new computers or advertised high or low bandwidth network access connections, users in disenfranchised areas invariably report 'slow or no response' when using devices and applications connected to the Internet. These complaints remain anecdotal, as there is a general lack of elongated academic research on disenfranchised areas in Africa. In this research, I attempt to quantify the complaints in the case of the LinkNet network in Macha in Zambia. In previous work, I and my co-authors, conclude that, indeed, the Internet can be labelled as 'slow', due to issues with TCP in high delay networks [38]. Service interruptions are regularly experienced with video streaming, store and forward services, embedded services, banking applications, and office software, among other things. Also, as the applications go through frequent patches and upgrades, the user experience for the same application can change from version to version.

The persistence of complaints over the years has amazed me; these complaints are not aligned with the popular narrative of explosive growth in Africa, which is now linked to the world with an ever-increasing number of sea-cables at ever growing speeds. Although I have spent much collaborative effort in longitudinal research and development to facilitate contextually-embedded network access for over 10 years, with community deposits of information and international academic scrutiny [8, 42], the user complaints have remained, which has been puzzling me greatly.

I noticed a continued reliance on mixed and ageing networks (GPRS, 3G, Very Small Aperture Terminal [VSAT], varieties of WiMax and multi-hop links), with poor performance aggravated by an installed base of older computer systems, relative low-grade devices, and a growing share of web-interfacing and cloud-based services [43]. The average web page size in 2012 was 68 times larger than the average size in 1995 [9:86] and the inequality in the availability of bandwidth has grown threefold in the last 10 years [44]. The inequalities are becoming more and more pronounced as more people access the Internet. It can be concluded that a *de facto* constant remains: rural networks feature high latency and congestion, resulting in poor throughput or a complete lack of availability.

Performance problems inherent to contemporary TCP/IP and service design

My investigations centred on the shortcomings of the end-to-end connectivity provided by the Transmission Control Protocol/Internet Protocol (TCP/IP) and the performance of Directory Name Services (DNS). These protocols and services are among the basic building blocks of the Internet. Due to the general constraints on doing research in rural areas, mostly devoid of financial or research resources, my colleagues and I relied on the opportunistic use of facilities, wherever and whenever available. Our first findings were presented at the Africomm conference in Cameroon in 2012 [37].

Among the main technical hurdles remains the effects of latency [38]. A latency of at least 400 milliseconds is introduced in the case of satellite connectivity. This latency is unavoidable due to the large distances from the earth to geo-stationary satellites and from the satellite to the connectivity hub, often in multi-hop environments, and the frequent use of relatively low-grade equipment with large buffering and processing-time overheads. In rural Africa, one finds diversity, with all kinds of equipment, including poor-quality hardware and devices, often with outdated and unpatched software [45].

Recently, Yasir Zaki *et al.* [46] confirmed the significance of the problems that have result from the architecture of the DNS. Even when connected to direct sea-cable, Réhan Noordally *et al*. [47], saw performance deteriorating delays from Reunion Island (a periphery) to servers in France (a centre).

In previous work [37], my colleagues and I quantified the poor performance of TCP outgoing links on the Windows Operating System, compared to other operating systems (OS) such as Linux and MacOS in the LinkNet network in Zambia. Subsequent simulation in lab-environments confirmed the significant negative effects of high network delays on Windows 7 and Windows XP machines. Internet throughput in these Windows Operating Systems is unfairly disadvantaged, and this effect is amplified even further when there is a mix of Windows and Linux flows present. The simulation made use of a Windows or

Linux virtual machine connecting to a Linux Virtual machine over a simulated 1 mbps link. Table 1 presents these results for a network without delays and a network with an introduced delay of 1 second. The latter is a typical delay observed on the satellite network during peak usage periods.

Table 1. Simulation results showing TCP/IP throughputs for Linux and Windows flows [1]

No delay introduced (10 milliseconds systemic delay)	
Linux TCP flow only	892 kbps
Linux TCP flow with Windows flow added	822 kbps
Windows TCP flow only	968 kbps
Windows TCP flow with Linux flow added	151 kbps
With 1 second delay introduced	
Linux TCP flow only	860 kbps
Linux TCP flow with Windows flow added	858 kbps
Windows TCP flow only	110 kbps
Windows TCP flow with Linux flow added	57 kbps

Further investigation from 2014 until 2016 — with the help of engineers at Microsoft Research Laboratory in the USA — exposed the underlying cause of the problem. Windows 7 and Windows XP use a default TCP receive-window of 16 kilobytes (kB) while the receive-window 'auto-tuning' is disabled by default. For a 1 second link delay, the result is a maximum throughput of 16 kB x 8 bits / 1 second = 128 kbps. This is similar to the 110 kbps seen in the simulation. Linux, on the other hand, has a default maximum TCP receive-window of 128 kB. This results in a maximum throughput of 128 kB x 8 bits / 1 second = 1,024 kbps. Furthermore, Linux has the receive-window 'auto-tuning' enabled by default.

Even after enabling the default receive window in Windows or enabling its auto-tuning, the TCP protocol (TCP New Reno) used by Windows 7 uses a delay-based congestion-window that adjusts throughput according to the Round Trip Time (RTT) of the last TCP packet. This makes Windows more sensitive to high delays. Linux, however, uses a different version of TCP (TCP CUBIC), which changes its congestion window on the basis of the last occurring congestion event. As a result, Linux is less susceptible to high delays. Further investigation with Windows 8 and Windows 10 OS showed that these operating systems use the same conservative default TCP values, although they use a slightly-improved TCP protocol called TCP Compound.

Modern satellite networks make use of TCP acceleration techniques, so-called TCP proxies. These proxies are implemented in the satellite modems and blur the distinction between the performance of Linux and Windows. These acceleration techniques create a virtual version of the network end-point on the client side of the satellite modem in order to cause the network to rapidly increase the TCP congestion window and, hence, accelerate the throughput of the upload. However, experiments throughout Southern Africa conducted by my colleagues and I confirmed that issues resulting in the poor performance of outgoing traffic for Windows OS persist in GPRS/Edge/3G networks, as well as in multi-hop wireless networks and legacy satellite modems.

These findings affect outgoing connections only and hamper user experiences when using the Internet, and are particularly severe when doing cloud service uploads or using Voice over Internet Protocol (VoIP) services. We observed frustrated users when they tried to upload data or use VoIP services like Skype, on Windows machines. Some users in LinkNet network even became hostile to the LinkNet support staff, based on a suspicion that they were deliberately slowing down network traffic for users using Windows computers, compared to users with Apple computers or other Linux-based operating systems. This suspicion and hostilities persisted, even though a logical and technical explanation for these experiences was given by engineers.

With Windows being the dominant OS in Africa (there are lots of legacy systems based on widely available copies of Windows-XP or Windows 7), the compromised performance of Windows' TCP/IP is a significant issue. This problem is compounded by the fact that TCP/IP is continuously being developed for improved performance in high-bandwidth networks [50], potentially creating further difficulties for 'slow' networks.

In further research, my colleagues and I confronted the assumption of always available affordable bandwidth for operating systems and application-updates on computers, phones, tablets and other computing devises. These updates use precious data, depleting users' data-bundles. Updates often start/stop and restart due to poor and failing data connections [38]. Users are confused because their data is used up by a process that they have had no control over. We noticed that standard web proxies, which could cache these updates, are either not in place or not configured correctly to be able to cache update file types.[183]

[183] For example, the squid-proxy requires an additional entry to match .cab, .msi, .exe and .apk file types for updates. Even when the additional entries are in place, sometimes delta-updating, which is used by some update processes, will cause a cache to miss. To solve the problem of updates consuming user's data, modified and smarter caching at the Internet gateway is required. To make the case for more localised caching and clouds (cloudlets) to support the strong locality

User Experience Compromised by Misaligned Internet Technologies

Technology development tends to build on perspectives derived from research in centre-countries [14, 15, 32]. As a result, the average network performance and user experience observed in such environments are reflected in the design and generic settings of software. In such relatively affluent areas, users are generally connected to low-latency networks with relatively high-speed connections, with cloud servers geographically relatively close by.

Browsers like Google Chrome are designed to show a web page when all components of the web page have been received. In Southern Africa, this means that frequently more than 10 seconds pass before the first information appears on the user's screen. The user calls this 'slow Internet', although the actual transfer speeds might be relative high.

Web pages embed calls for content from many different sources. Each call involves a DNS request and, due to many requests, the time for the electronic signals to travel the physical distance to far-away servers, and the computing processing times, significant delays occur.

Cloud services require the information to travel vast distances, even if the recipient of the information is in the same community. Therefore, cloud services add to the challenges with usability and user experiences in Southern Africa. Many Internet services and products, such as Google and Facebook, restrict access to a secure version of their web site. This adds further delays to the experience of users in Africa due to the need to request and process security certificates.

Google has set its services to time-out after a (perceived) lack of response from the client to prevent too many 'hanging connections'. Web browsers also have default time-out values and keep-alive values. These are set for typical Western networks with low latency. Due to the physical distance of Southern Africa to many network servers with the requested data, these default time-out settings can cause web pages to respond with a 'timed-out message'. In a VSAT environment, high latency is natural, given that latencies above 1 second are common. In a congested network using a satellite connection, these delays can be more than 10 seconds [38, 46]. Time-outs in services cause user frustration and wasted Internet expense.

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in the network, my colleagues and I at Macha Works developed VillageShare to allow local users to share content with each other locally, without use of the Internet connection beyond the gateway [43].

News applications, video applications, and software like Microsoft Office365 appear to have embedded protocols with various and non-standard time-out settings. If one of these settings times out before all interactions are finished, the user will not receive the service requested. Thus, the behaviour of the application cannot be relied upon. For instance, a time-out of a user licence check can disable Office365's ability to save ongoing work. In general, designers in bandwidth rich and latency low environments do not necessarily design their systems to allow for local customisation and optimisation for users in constrained bandwidths and high-latency environments. The fall out of these issues are real; time and money are wasted and relationships in communities suffer, as performance differences can be perceived by community members as caused by engineers trying to unfairly disadvantaging specific users.

Technology misaligned with language

'This Internet is slow' is a general statement, frequently uttered by many on the African continent. This statement, however, does not necessarily translate well into a cause and effect designation addressing the underlying issues. The technical nomenclature provided for by the (foreign-designed) systems and the labelling they represent do not align with a nomenclature of technology as it is understood by people rural areas. In Southern Africa, the Bantu family of languages has a different representation of concepts. Languages tend to refer to living and movement, while European languages refer to things and allow for the deconstruction of realities [47, 48]. Therefore, there appears to be no relationship to the (wording of) Southern African users' experiences and what is needed to communicate with designers to improve the system [cf. 23, 49, 50]. A tool set or an automation of context-adapted tests for adjusting application settings according to the particular link specificities is not available in Southern Africa. In February 2016, in Harare, a Shona-speaking ICT-expert working in rural areas in southern Zimbabwe shared the following about his experiences:

> *When I explain my mission, I find myself unable to translate English words like 'web page' or 'application', thus I switch between Shona and English. However, my audience, with whom I wish to develop an application, do not use English much. They appear not to comprehend these English words.*

The inter-cultural mix of meanings does not translate the user experience from African users into a language that the designing engineers — mostly in other environments and context — can understand. An engineering not geared to the Southern African reality and its social constructs, disempowers African engineers to engage with these challenges [13]. This disempowerment fuels an imperialist/colonialist narrative embedded in the white saviour syndrome, which promotes the need to 'bring technology' for the benefit of 'the

other' [32, 51]. As a result, engineers from technology producing countries feel sanctified to fly into Africa for research, training and 'to solve problems', as technical assistants. However, only when engineering companies engage meaningfully with African realities and empowering indigenous research and development in (rural) Southern Africa can this disempowering spiral be broken [13, 14].

ICT standards insensitive to location and community contexts

As the dynamics of a networked society aid the centralisation of power, it takes conscious effort to guard the ethical principles of neutrality, non-discrimination, equity, and reciprocity. Everyone involved in the value chains of ICT production need the capacity to communicate over the various divides that separate people. Reflecting on an African value such as *ubuntu*, this can involve catering for shared identities and communal love [52]. Driven by moral values, I noticed in Macha and other study areas, African engineers aim to withstand the drive of self-aggrandisement and ensure a truly global and diverse community of all stakeholders and interlocutors [13]. The incorporation of previously disparate views, e.g., through listening to African communities, is the future source of corporate (= incorporating all) development, social responsible behaviour, and just and sustainable progress.

Some hints of the incorporation of a localisation aspect in the operation of technology can be seen. For instance, Google provides for browsing on slow links in Gmail, allowing access to less-complex web-interfacing. However, true localisation needs development and testing on site and in context, in an African laboratory and/or community, to see if the OS/application/hardware is truly globalised. To my knowledge, such a laboratory does not exist. Such a technical laboratory should operate in the real-world under mainstream (rural) African conditions, incorporating the real challenges of electricity, connectivity, the environment and the business context in their daily operations. Many developers appear to have 'heard about Africa', but are void of an embodied experience of African contexts, meanings and effects over an extended period of time.

In an effort to alleviate the TCP/IP disadvantages in Windows and other problems, my colleagues and I propose that standards be developed to allow operating systems and protocols to query or check the context and assess if the system is connecting over a relatively slow/high delay link. Upon understanding the context, technologies such as operating systems can evoke a contextualised TCP/IP, DNS caching, and web browsing.

Invisible Shortcomings Resulting from Dominant Narratives

Many 'causes and effects' actually involve a complex chain of events. Due to the shortcomings of globalised Internet in Southern Africa, usual user experiences challenge the chain of engineering causes. This chapter highlights the effects of poor TCP/IP performance and DNS induced delays, aggravated by the performance of low-grade equipment and the underlying design. To gain an understanding, paradigm switching unearths other realities as they present themselves in rural areas in Africa. The ultimate cause of invisible shortcomings is the exclusion of voices from so-called non-technology producing countries, especially in sub-Saharan Africa. This major omission leads to unlinked, un-contextualised and, ultimately, unsuitable technologies in Southern Africa. Soliciting complaints from individual users does not solve this conundrum, as such practice does not align with local culture I have witnessed in Macha and other rural areas [13, 52, 53]. However, the daily user experience in many parts of Southern Africa, especially in rural areas, seems consistent, albeit at variance with, what users in affluent geographical areas might experience. Even the meaning of terms like 'ICT' or 'Internet' might be at variance (for example, Facebook is sometimes regarded as 'the Internet'), with the complex aspects of coloniality playing subversive roles [29]. Thus, there are many aspects influencing the understanding of the causes and effects of the shortcomings of globalised Internet in Southern Africa.

In many narratives, the Internet is regarded as a crucial enabler of human rights, like freedom of speech. The inventor of the Internet, Vint Cerf [54], agrees with this notion. However, he argues that the Internet should be considered a tool and not positioned as a right in itself. Tim Unwin [44] indicates that the ongoing and growing disparities in access to, and use of, ICTs are accelerating inequality. He highlights the growing gap in subscribers to mobile networks, between the so-called developed and least developed countries. He also observes that technological advances in the 'richer' countries of the world generally outstrip those in less affluent countries. He concludes that "the rich have been able to gain the benefits [of ICTs], leaving the poorest and most marginalised ever further behind" [44:5]. Nicolas Friederici *et al.* concur; they debunk the Grand Visions of (the benefits of) connectivity as a contextual modernism and optimistic simplicism, with claims ungrounded in evidence from scientific research [4].

Currently, most African contributions appear to be overruled by the dominant *lingua franca* or 'single story' of a globalised technology (see also Chapter 9 on the dangers of this single story). However, for technology to be truly globalised, ICTs deployed outside of the context in which they were designed must be subjected to a context suitability critique. In this chapter, such a critique is applied. Based on a reflexive stance and

technical laboratory research, some of the shortcomings of Internet technology in African settings are explored.

The impaired TCP/IP and DNS, as well as web browsers issues, coming to light in Southern Africa show the general failure of global non-localised technology. Contemporary technologies are failing to incorporate all experiences, perceptions and human intents, in an inclusive manner. Globalised technology should be sensitive to its context and should not be approached as 'one size fits all'. There is a need a shift in engineering attitude – from assuming that technologies designed in the West will be useful in Southern Africa to developing technologies in and *with* Africa. Apart from the obvious need to address the current shortcomings in network protocols, operating systems and software applications, these findings provides a rational for contextualised Africa-based engineering research and development to ensure the development of network protocols and applications that are context-sensitive, adaptive and truly global.

Conclusion

This chapter provides examples of how information and communication technologies are misaligned with many African contexts and disenfranchises many African user in ordinary circumstances. Although most users rely on ICTs to participate in today's globalised world, this chapter shows how the basic network building blocks of ICTs, such as leading operating systems, do not perform well in Southern Africa. Moreover, this chapter shows how language, standards, and paradigms are major hurdles to learning from user experiences in Africa.

In the African context as experienced in Macha, Zambia, the use of ICTs is negatively affected by persistent poor user experiences resulting from a myriad of environmental, skills-related and cultural factors [37, 38, 42, 55]. There is a lack of technology that is cognisant of – and facilitates – African realities [13] and of the contextualised framings and applications of ICTs [6]. Persistently, Africa is imagined much smaller than it is (see Chapter 7), omitting issues brought about by latency, congestion and a high variety of equipment. The colonial heritage and ongoing colonial narrative in computing [56], embedded in the core technologies of the Internet, hamper usability of the Internet, especially in parts of Africa at very large distances from core Internet services. However, African ways of engineering and dealing with African realities and values are being ignored. An African approach to engineering – an approach cognisant of what Mirjam van Reisen called "system diversity" [59] – is not recognised in mainstream prevalent thought, which provides one dominant, and colonially informed, narrative for Internet technologies.

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Chapter 11

Defining 5G Mobile Networks: Africa's Non-Inclusion[184]

Contents

[184] This chapter is based on the paper 'Africa's Non-inclusion in Defining Fifth Generation Mobile Networks', which I presented at Africomm 2016 in Burkina Faso [1].

Introduction

The development of information and communication technologies is dominated by businesses and academia in Europe, North America, and, since the last decennials, Asia. This is relevant with regards to the research questions in this research, that require investigations of (colonial) power relations in contemporary relationships between engineering practitioners in Africa – especially those in rural areas – and foreigners, and how they interact when meeting. However, when foreigners appear to hold all the powers in the design and deployment of technology, is there anything to communicate about? Is there a relevant encounter where different narratives meet to inform technology development informed by engineering practitioners in Africa?

Mobile networks are, of course, among the most ubiquitous present technologies available, especially in rural areas. Although not present everywhere, there might be a mobile signal but no electricity, water, or other 'built environment' infrastructure available. Therefore, in this chapter I choose provide a perspective on 5G development and its implications for Africa. The findings are derived using reflexive science and the extended case method as explained in Chapters 2 and 4. This chapter draws on reflective insights focused on my engagement with practitioners and engineers specifically active in the field of mobile networks. The period of engagement spans from 1995, when I was a strategist at the incumbent mobile operator in the Netherlands, up to the present time as, among others, an affiliate with the government technology centre in Zimbabwe. This chapter was facilitated by frequent interactions with experts in mobile networks during my many travels throughout Africa, Europe and North America between since 2010, followed up by frequent review of developments and discussions with technologists and mobile network experts in Africa and all over the world by means of instant messaging from my African localities.

The Development of Mobile Networks

Mobile network systems are defined in an architecture that sets the workings and interactions of core technology components, their access interfaces, and operations and management. The system standards and their specifications are mostly set by the 3rd Generation Partnership Project (3GPP) and the International Telecommunications Union (ITU), a body of the United Nations. The architecture defines the system performance and sets the device and operational requirements. These specifications aim to cater for anticipated user needs and should consider the requirements for deployment, operation and management. In the run-up to the setting of definitions and standards for 5G — the fifth-generation mobile network — one recognises the reiteration of enshrined practices mediated by the control of engineers embedded in centres of

product development. The associated processes and collaborations invariably involve discussions and activities outside Africa. Hence, Africa remains silent while the particulars of 5G are being set in irrevocable decisions and conceptual and textual artefacts.

There appears to be an eight-year innovation cycle in mobile technology development. The first generation of digital mobile networks emerged in the early 1990s; the third generation of mobile networks (3G) were standardised in 2005, while the fourth generation (4G) were standardised in 2013. The fifth generation is likely to be market-ready in the year 2020, with its development and standardisation being a 'work in progress' until 2019 [2].

Fifth generation (5G) means different things to different people. At its heart, it is heralded as a fundamental change in the way of thinking about mobile networks and wireless systems [3, 4]. Among its priorities, 5G focuses on increasing mobile data volume per geographical area, the number of connected devices in a given density, the user data rate, and the speed of service deployment, as well as decreasing end-to-end latency [4]. [185] However, these priorities are not relevant in the rural areas in sub-Saharan Africa where the majority of Africans live. These areas have low population densities, limited transport infrastructure, and are affected by the shortcomings of globalised Internet technology [5]. The omission of African inputs in the settings of priorities for 5G, especially catering to non-urban centres, is due to the fact that contributions to the 5G architecture come from a core of network operators and technology players based in cities and areas outside of Africa. The operators in this core are Vodaphone, Telefonica, NTT Docomo, China Mobile, ATT, and Orange. These operators contrive with a conglomerate of four main technology players: Huawei, Alcatel-Lucent, Ericson, and Nokia Solutions and Networks. All of these companies are headquartered in either Asia, North America, or Europe. From such a positionality, their management is shielded from, and relatively unaware of, African realities.

As is often the case in the field of technology, the development of 5G ICTs is sustained by a vendor-driven, conservative, apolitical approach to technocratic service delivery. This myopic and complacent practice thrives on a capitalistic and neo-liberal ideology and a development paradigm based on technology determination. Current systems of technical development involve a diverse and multi-layered arrangement of research and

[185] End-to-end latency (E2E) is "the duration between the transmission of a small data packet from the application layer at the source node and the successful reception at the application layer at the destination node plus the equivalent time needed to carry the response back." [4:26], which could be seen as the time needed for the signal from the user – which could be an application – to reach the user 'on the other side'.

development, standardisation and intellectual property. This arrangement prioritises knowledge and knowledge practices developed outside of Africa and, therefore, represents a systemic obstruction to inputs from Africa [5]. The dominant conglomerate of operators and manufacturers wields power, which is sustained by their influence in academia, finance, and politics, including the politics of technology knowledge production and dissemination.

The process of 5G technology development involves white papers [for example, 3, 4] and technical inputs (for example, from a mainly North American perspective [6]). These contributions are aligned with the positioning of corporate industries for market dominance and the use of intellectual property from their patent portfolios. At certain moments in time, these inputs solidify in decisions. For example, Radio Access Networks were defined (and linked with participants from North America, Asia and Europe only) during a 3GPP 5G workshop in September 2015 in Phoenix, USA [7]. Such standardisation is framed as a zero-sum power game, disallowing the involvement of those not physically present. The standardisation meetings are open and contribution driven, however, the practicalities involved prohibit the engagement of Africa. The outcomes are portrayed as a fait accompli and often contain surprises for those unable to participate in the process. Africa remains un- and misrepresented.

Driven by Asian inputs, 5G focuses on vastly increased data transmission rates. European contributions target the opening up of vast sensor deployments across the world. Demands for efficient spectrum use and considerably reduced-latency push technologies to use super-high frequencies. Capability aspirations include the harvesting of the promises of the Internet-of-Things by bolster network reliability (targeting 99.999% availability) and the lowering of the round-trip delay in the range of 1 millisecond. Through such performance, it is expected that more applications in new fields can be allowed and 'security abilities' will improve. Examples given include disaster avoidance through vehicle-to-vehicle communication. The Western-dominated body of knowledge is supplemented by incidental contributions from researchers and companies, again from Europe, North America and Asia. An example is a much-cited contribution defining a tactile Internet that can sustain holography, from a technical university in Germany [8]. However, the question remains: Where is Africa in this whole discourse?

As a matter of fact, there have been no significant African contributions to the development of 5G. I have not come across a research agenda nor funding for African academic investigation and development, from African points of view, within the current framing of 5G development. There seems to be insufficient research and academic rewards in such positionality [9]. African research is regarded as idiosyncratic

and involvement in such research can even have negative consequences for career development [10].[186] There is a sustained lack of funding for research embedded in African society, by Africans, in Africa. In practice, all resources that flow out of the mobile technology processes – being understanding of process, intellectual and technical knowledge, quality information, theory, and secrets – flow to those involved in the process. Whether I enquired from mobile operators in Zambia, Zimbabwe, or conversed with government regulators in Cameroon or Namibia, the response on research and budgets was nil, and I could not unearth records of local, in country technology research to investigate local demands. When not part of the core team, it is hard to properly comprehend what is going on. These Western-centric processes of technology development represent a normative power system, which Nicola Bidwell recognised as being "complicit with systems that contribute to widening gaps between rich and poor, and urban and rural people" [11:53]. Bidwell's observation is aligned with Paul Dourish and Scott Mainwaring's view that the discourse on ubiquitous computing – the prime source of ardent claims of the promises of 5G – sustains a colonial intellectual tradition [12], as the events and decisions made by non-Africans in distant meeting rooms have critical impacts on the use and benefits of technologies in Africa.

Technology Hegemony: The Non-Inclusion of Africa

The smooth and orderly flow and exchange of technologies is of critical importance for the domestic stability of a country. Lopsided trade relations, the result of imperialism, can lead to dependency and (colonial) domination (see Chapter 5); similarly, technology hegemony has the power to interrupt or disrupt commercial or financial flows or relations between countries. Technology can determine a community's ability to guard its sovereignty and steer its own destiny. In a maritime analogy, Andre Zaaiman [13] quotes Bryan McGrath, a naval expert at the Hudson Institute. McGrath explains the central proposition of the US Naval Strategy:

> *…that there is a global system in place that works to the benefit of the people of the United States and all other nations who participate in it. The system consists of tightly interconnected networks of trade, finance, information, law, people and governance, and the strategy posits that U.S. maritime forces will be deployed to protect and sustain the system*. [14:online]

[186] There is a glaring absence of African references in mainstream academic literature. As African scholars are disregarded due to the various forms of hegemony in publishing (see Chapter 4) and due to asymmetries in research relationships, citations referencing African publications are scarce. Residing in Africa can, therefore, affect one's academic's citation index (the so-called 'h-index') and, subsequently, one's academic (citation related) standing.

McGrath's proposition is a modern rendering of the 'invisible hand' mentioned in Adam Smith's writing in 1776. In his study of the capitalist economy, Smith argued that participants in its processes:

> *... generally, indeed, neither intends to promote the public interest, nor knows how much he is promoting it. By preferring the support of domestic to that of foreign industry, he intends only his own security; and by directing that industry in such a manner as its produce may be of the greatest value, he intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention.* [15:246]

Therefore, even unconsciously, participants in 5G processes will be oriented towards maximising the benefits for themselves, most likely to the detriment of Africa. Hence, it comes as no surprise that the current 5G development process sustains the 'techno-powers' of established, non-African players. This syndicate is backed by a development philosophy and master narrative derived from the conceptualisation of capitalism, liberalism, and implicit Orientalism, from the position and interests of a non-African centre [16]. Subsequently, the barriers to African participation in the development of 5G (and most ICTs, for that matter [17]) result in an opportunistic invasion of Africa and diminution of African agency, leaving Africans no real opportunity to participate in a meaningful way. The Nigerian scholar Emeka Ekwuru [18] argues that globalisation is linked directly to cultural atrophy — the death of cultures, particularly those in Africa. The exercise of techno-power in 5G is a vivid example of such globalisation.

Claims of 'universal truths' – like the one that 5G will be transformational – are imperialistic and untrue [19]. Due to the exclusion of African voices, 5G development can only be partially fitting and will be context biased. Ann Light and Yoko Akama [20] draw on the work of Joan Greenbaum and Kim Halskov [21] to argue that it is an ethical and democratic imperative for everybody, including people who have been historically marginalised, to influence the decision-making processes that affect their communities and lives. The design of computing e-infrastructures and architectures, such as in mobile networks, hard-codes the conditions and possibilities for mobile networks in communities in Africa. The non-inclusion of potential contributions from Africa, whether from communities, governments, industry or academia, and ignorance of the value of African worldviews and economic realities and practices, leads to technologies and services that are unaligned with the daily experiences, practices and needs of communities in large parts of Africa. Only if the fundamental interests of African people, especially the poorest and most marginalised, are incorporated into the design parameters of 5G, can 5G fulfil its claim to be transformational. Such an understanding

of the agency of Africans and a related optimism is at odds with the widely-held belief that Africa is steeped in poverty and mired by underdevelopment.

For Africa, the persistent master narrative of underdevelopment is a significant obstacle to meaningful participation. This master narrative is advantageous to the leaders of industries located outside the African continent, but considerably hampers Africa's ability to freely and fairly contribute to setting the agenda for 5G. The failure to participate feeds into the story of underdevelopment. A circular and negative narrative pre-empts the development of African proposals, thereby reducing the opportunity for Africans to influence the flow of resources that will result from a 5G roll-out. History repeats itself, and Africa will be forced to consume foreign 5G products, instead of creating African technologies to meet African needs and reflect African worldviews.

The bar set by the 'powers that be' for the inclusion of African contributions to 5G is, in practice, exclusionary. Of course, this all feeds into the continuation of the master narrative that the West must bring 'development' to Africa, be it in the form of culture, commerce or technology [22]. Sometimes a profession gets over the power bar. For example, although much constrained by foreign influences, there is ample evidence that medical research in rural areas of Africa has provided African solutions that are of real value in African contexts. African research influences priorities and improves the fight against infectious and non-communicable diseases, which affect millions of people. In technology, such research has not yet broken the glass ceiling created by hegemonic forces, which prevent inclusion and equality and sustain the continuation of a single narrative 'about Africa' based on poverty, incapability and distance.

An example of the dominant narrative of failure is the United Nations Educational, Scientific and Cultural Organization's (UNESCO) *Science Report: Towards 2030* [23]. In this report, the authors note that:

> *… unfortunately, many countries in Africa and Asia mainly are producing fewer inventions today than they did in the early 1990s, despite healthy rates of economic growth. An analysis of patents signed between 1990 and 2010 shows that 2 billion people live in regions that are falling behind in innovation. This decline is overshadowed by the extraordinary development in India and China: almost one-third of the 2.6 million patents filed worldwide in 2013 came from China alone.* [23:4]

In the linking of innovation with growth, UNESCO aligns itself with a hegemonic master narrative that the economy and innovation go hand-in-hand. However, is not congruent with the narrative I can recognise to describe an economic reality in many African

communities like Macha [24]. In many parts of Africa, survival is at stake and everyone is an entrepreneur, using multiple methods of improvisation [25]. For instance, I witnessed that, during a church service, unexpectedly prayer was offered for 'entrepreneurs' in a congregation in Harare, in 2016. With the exceptions of a very few, almost all attendants went forward to receive prayer. As the African voices in engineering are subdued, there is a general lack of formal interaction on technologies in African societies. Most entrepreneurship takes place in the informal economy – which is estimated to constitute more than half, sometimes over 90%, of the economy in African countries – where economic life can be more robust than in the formal economy.

So, where are the African contributions to 5G, one might ask? The framing of one's outlook determines whether or not one can recognise them [26]. In current practice, 5G discussions are set in processes in which individual entities provide inputs and engineers develop working groups and assess the relative merits of technologies. In this process engineers constitute the methodical power basis from which to integrate contributions into outcomes. This process is not aligned with African practices, which focus on communal, dialogical, reciprocal, continuous, and contextual behaviour [19, 27]. Africa and its engineers cannot be readily understood through the lenses provided by international capital, (neo-liberal) geopolitics, and mass culture [25].

Invisible in the larger world due to exclusion, from my observations in Macha and beyond, I deduce that Africans have forged a particular way of working. With regards to African engineering practice (see previous chapter) – a practice which has been salient in a locale over a substantial amount of time – it is important to note that African engineers do work in cooperation with each other. They align with a social, communal identity that allows each engineer to contribute to the whole, understanding their individual roles as a derivative of a common purpose: to enable a community reach its collective potential. In an ongoing and collective conversation, knowledge is exchanged and rehearsed to ensure a level playing field for all involved in the understanding that the success of others is the success of everyone. This, for instance, is apparent in innovation labs, as I witnessed in Macha, Lusaka, Harare and Masvingo. Activities happen in an environment where engineers know there is a need to grow in both knowledge and abilities, in union, by forgiving shortcomings and mistakes, to be able to live today and to be able to convene always, to be able to live. African engineers, I have experienced, understand that 'the living' are just an instance in time, part of a long line of ancestors. African engineers invest in social harmony, for those who will come after. This reading of African creative practices aligns with Ingold and Hallam [28], who contend that such forward reading of creativity – in contrast to a backward reading of innovation – shows its improvisational, temporal, relational, and performative agency.

As is the case the world over, people in Africa often improvise [25]. Africans, like everyone else, mediate the natural world in line with their enshrined practices, in context and positionality [27]. In this sense, African work adheres to framings and processes and responds to needs and forms of appreciation understood in Africa. However, these requirements are at odds with those that govern the current development of 5G technology. It appears that no input to 5G development has been solicited from Africa on the framings, processes, needs, and forms of appreciation instrumental in Africa. Governing processes seem to be set in stone; I experienced stringent regulations, even when proposing to test very low power, OpenBTS GSM experiments together Jacqueline Mpala, in Macha [29].

The development of 5G is well under way and the reality check presented here anticipates little room for African contributions. The established teams of operators and equipment suppliers are well versed in their play. There seems to be little chance for Africa to assemble a team and take part in the current 5G major league. The contemporary processes dominate, silence, objectify and normalise Africans. Therefore, for Africa, 5G could well remain a hollow story of 'more of everything' – more speed, more bandwidth, and faster response – unaligned with most of the lived environments in Africa. Many people in Africa already struggle with the limited performance of 3G and 4G services, low investment per user, service shortcomings due to high latencies to distant service platforms (see Chapter 10), and an influx of services that leech information generated in Africa to Western-controlled cloud-services. This has resulted in the continued labelling of Africa as 'immature' and has expanded the digital exclusion [29]. The technological gap between foreign experts and the technologist in countries like Zambia and Zimbabwe remains a tantalising reality.

Potential African Contributions

To ensure the inclusion of Africa, the development of global mobile networks needs contributions and participation from Africans. Understanding from Africa can further circular, participative, and collaborative engagements. If the eight-year sequence holds, the next agenda is prone to be set around 2020. Due to the long lead time, Africa should position its conceptualisations now.

Are there already indications of the possible nature of African contributions to communication technologies? Based on my reflexive work in Southern Africa, I suggest that African realities can indeed inform the development of these technologies, also in mobile systems. As an indication of such contribution, I give three examples: (1) the

embedding of human inclusiveness and frame bridging, (2) moral engineering within a paradigm of resource abundance, and (3) ongoing work in TV White Spaces.

Aligning engineering with human cultural behaviour

The growth of inequalities resulting from the roll-out of ICTs can be witnessed in their most heart-wrenching form in the African urban/rural divides. In the so-called urban-jungle, survival is the mantra. Here, by design, resources are scarce. Every conceivable use is exercised in every conceivable manner. Anything goes, as, due to a combination of resource scarcity, unfamiliarity and a lack of inclusion of technology in indigenous culture, people's behaviour and conduct appear to be largely regulated by impulse. Human suffering continues due to the zero-sum game design of resource provisioning. To overcome unequal resource distribution, future mobile networks could bridge frames to provide for the creation of networking commons. In an experimental design, Jonathan Ouoba and Tegawendé Bissyandé [30] show how, with sensitivity to cultural practices and human behaviour in West Africa, new and contextually-adapted e-services can be developed that make sense in context, utilising opportunities to share data when people meet and go their own ways in daily life [cf. 31].

Incorporating communal methods within resource abundance

Africa is rich in the frequency spectrum. This richness blends with the enormous wealth of people, the culture and the environment. Africa is home to 15% of the world's population and boasts many diverse cultures, as well as a staggering amount of natural resources [32]. Sustainability requires the balancing of community and individual needs, embedding activities to interact with finite resources with a convivial, inclusive and participatory orientation [33]. From the outset, an African take on the essentials of mobile technology is not only economically enriching, but its moral relevance.

In an effort to show ongoing work based upon African inputs, Fred Gweme and I [34] documented the potential of the innovative use of frequency spectrum to allow for conceptualisation of networking/telecom infrastructures and services, involving all stakeholders in the periphery, in the use of so-called 'TV White Spaces' (TVWS). This technology development is rooted in African efforts [35, 36]. With relatively low people densities in the majority of Africa's landmass, the second biggest continent in the world (see Chapter 7), the radio spectrum – the amassment of electromagnetic radio frequencies – is generally uncrowded, with many radio frequencies (parts of the spectrum) being unused. However, radio spectrum allocations are guided by old, rigid principles that guard the interests of the powerful, mainly living in urban areas. The realisation of this fix and the recognition of a 'spectrum dividend' has led some African scientists to explore the potential of TVWS technologies [34–36]. Their reasoning involves embracing the community, abundance, sharing, and the practice of authoritative communal (effectively a commons-based) governance. Potential

outcomes include proposals for devising dynamic and fair access to dominated, but unused radio frequencies, use of cognitive technologies, the innovation of spectrum utilisation and monitoring in challenging environments, and the development of national and regional spectrum databases. These experiences can be generalised in mobile network technologies.

Conclusion

This extended case study of 5G and Africa shows how enshrined systems and processes that steer change in core technologies are devoid of African inputs and participation. Africa is not consulted in defining the list of needs by society, and Africa is not included in the development of the techniques, skills, methods and processes used in the production of core mobile technologies. In this field, there is no interaction between local technologist and foreigners. The barriers are virtually complete, with no African representation and hardly any African contributions to a technology development that is (going to) affect(ing) many/most lives in Africa.

The current process of 5G technology development involves a relatively small group of operators and manufacturers, who dictate the kind of technologies that are being developed. Cognisant of the argument developed in Chapter 5, this practice represents a colonial behaviour. This chapter shows how this form of colonialism includes international corporations as a colonisers. They use their substantial influence and imperialistic business practices to exercise power over distant people and resources. By considering only inputs from Europe, North America and Asia, mobile network systems are Western-centric, support functionalities that facilitate particular (Western) behaviour and goals, while neglecting the needs of Africans in Africa. Under the guise of technocratic arguments, a limited group of operators and manufacturers design technologies and make irreversible choices on issues that not only affect themselves, but everyone else in the world. It is highly questionable if 5G will effectively support the social behaviours and contexts in Africa. Hence, the current 5G processes and their implications are a continuation of imperialistic practices and constitute a form of colonial meddling.

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Chapter 12

Remittances: Expressing Love Using Technologies[187]

Contents

[187] This chapter is based on a conference paper "mMoney Remittances: Contributing to the Quality of Rural Health Care" co-authored with Mirjam van Reisen, Harry Fulgencio, Antony Otieno Ong'ayo and Janneke van Dijk, presented at Africomm 2016, 6–8 December 2016, Ouagadougou, Burkina Faso [1]. This work is based on original research conducted by me, on which I reflected with my co-authors. This chapter is also based the paper 'An African View on Migration and an Alternative Understanding of Remittances' which I presented at the Research Network Globalisation, Ageing, Innovation and Care (GAIC) meeting, 15 April 2016, in the Hague, the Netherlands, remotely connected through Skype from Zimbabwe [2]. For the purpose of maintaining the flow and consistency with other chapters, 'we' has been changed to 'I' throughout when referring the authors.

Introduction

In Part II, so far, I have shown how the activities at Macha Works can be viewed, using multiple methodological approaches and various forms of presentation of evidence. In the previous chapter, I present a poignant example of how Africa has been pushed out of the interactions and processes that define technology – technology that will, nonetheless, invade African places, including rural areas of Africa. Considering the law of amplification of Kentaro Toyoma's law of amplification – that technology amplifies human intent (see Chapter 2) – the extended case studying of Macha Works yielded empirics to suggest that foreign technologies are misaligned with daily realities in Africa, especially in rural areas. The apparent shortcomings, the empirics show, are directly related to the colonial narrative and colonial behaviour, which continue to exist in the present day. Thus sensitised, observations in the community and laboratory experiments confirm practical observations that indicate that there are significant shortcomings in the internet technologies being used in remote African communities.

In the previous chapter, the underlying structures of techno-powers were revealed in a case study on the setting in which mobile communications technologies are developed, under the banner of the fifth-generation networks, which is to be launched in the coming years. The empirics show how this exclusion is real and will have significant impacts, now and in the future, and how Africa is positioned – by colonialising industrial forces – as a consumer of foreign technologies.

Thus, is there anything left to show of an empirical nature gleaned from (rural) Africa that can provide guidance in view of the research questions? Or, are there nodes of interaction, as mentioned in the research questions, where the indigenous context gives indications of a technical and social agency that might be helpful in construing answers that can guide respectful relationships between technology practitioners in rural African areas and foreigners? In answer to these questions, in this chapter, I present a case study on remittances. The chapter is based upon a sensitivity to the subject gleaned from the realities of using mobile money in Zambia (e.g., Xapit, a service of the national bank Zanaco) and Zimbabwe (e.g., EcoCash, a service from the mobile operator Econet). Mobile money has taken off in Zimbabwe because it is fully integrated with the mobile operator services, while in Zambia adoption appears to be hampered by the involvement of a third parties: commercial banks. Further, take off has been facilitated by the limited availability of cash money: Zimbabweans are encouraged to use digital services in day-to-day economic transactions. Therefore, this chapter focuses on remittances in the Zimbabwean context.

In our family, for instance, most of our funds are transferred through mobile phone. During frequent visits to rural hospitals in Zimbabwe's Masvingo province in 2016, I was informed by the hospital leadership that "mobile money is everywhere!", and in another very remote hospital I was told "maybe 75% of the money in these communities comes from remittances". However, there was no facility that allowed the use of mobile money to pay for hospital services at these hospitals at that time. My understanding of the various ways to look at remittances was enhanced by exposure in international discussions in a Working Party for Remittances for Health Care, visits to rural hospitals and communities in Masvingo Province in Zimbabwe, and a collaborative literature review with co-authors. In interactions with colleagues in Zimbabwe, I heard many stories as to how they were supported by remittances from family members. A major means of support, the transfer of remittances is being supported by mobile communication technologies. For instance, supporting the school fees of a sibling studying in Zimbabwe, a sister working as a nurse in Windhoek regularly sent money from Namibia to Zimbabwe by means of EcoCash.

This chapter addresses the sub-questions "how African actors aim to deal with their current and future existence in a connected world, taking coloniality into account". It is derived from observations in rural Zimbabwe, since 2015, especially in hospitals and communities in two rural districts, Bikita and Chiredzi in Masvingo Province in Zimbabwe. The second part of this chapter, is based upon in depth engagement with the book '"C'est L'Homme Qui Fair l'Homme" Cul-de-Sac Ubuntu-ism in Cote D'Ivoire' by Francis Nyamnjoh [3], and assess how his ethnographic analysis of a TV series by the same name in Ivory Coast led him to regard remittances differently in a counter narrative to the plundering of Africa, showing how technology and African culture relate.

Remittances: A Tangible Resource Stream for the Disenfranchised

The stability of the resources that the African diaspora share with their extended families and their effectiveness in sustaining activities in regions to which they relate is becoming recognised. Remittances are a significant source of finance that can sustain operations in disenfranchised areas, like rural areas of Zimbabwe. Remittances from the diaspora are an important source of external financing for social development in so-called 'developing countries' [4, 5]. Remittances can cover out-of-pocket expenses for vital services such as education and health care. This kind of direct support is useful to the receiving community, as inflows of cash constitute more than 10% of GDP in some 25 developing countries and lead to increased investments in health, education, and small businesses [6].

For the purpose of this chapter, personal remittances are defined as follows:

> *Personal transfers consist of all current transfers in cash or in kind made or received by resident households to or from non-resident households. Personal transfers thus include all current transfers between resident and non-resident individuals. Therefore, personal transfers are a subset of current transfers. They cover all current transfers that are sent by individuals to individuals.* [7:274]

Personal transfers include transfers from migrants to family members and any recipient in their home country, as well as individual to individual transfers. With the lack of formal banking infrastructure in many areas, especially in rural areas, remittances are predominantly dependent on technology such as mobile phones and money (mMoney) remittance transfer services.

In Zimbabwe, EcoCash, the most widespread form of mobile money, is utilising the Unstructured Supplementary Service Data (USSD) protocol, to ensure the service can be used on any phone. Many users access the service on low cost phones, without a touch screen, as smartphones are not yet widely used in Zimbabwe. I have not encountered the use of the mobile phone for such purposes in the West. It appears that incumbent systems and enshrined practices of banking through the Internet or the use of dedicated applications on smartphone to access third party banking services, and the formulation of regulations where mobile operators are not banks, have pre-empted the use of mobile money as it is being used in Zimbabwe. Although common practice in Zimbabwe, the transferring of funds from phone to phone, phone to merchant, or in payment of services (e.g., pre-paid electricity tokens of Internet access) – which even work when roaming internationally – surprised many of my friends and colleagues in the West who had never seen this before. There appears to be a void in the academic discourse on remittances, despite the potential to integrate remittances within existing systems in rural healthcare, education, and, possibly, the Internet of Things.

A Major Stream of Resources

Remittances are currently estimated to be four times larger in volume than Official Development Assistance (ODA). Remittances flow mainly in support of people in low-income settings. The volume of remittances is still expanding. Officially recorded remittances to developing countries totalled USD 431.6 billion in 2015 [8]. Sub-Saharan Africa received USD 36 billion in remittances in 2015 [8]. Per other sources, remittances to Africa are higher, possibly due to the inclusion of a broader spectrum of remittance

channels (see below). Remittances within Africa have also been growing. Such growth in remittances takes place despite the high transfer costs, especially in Africa:

> *… the opportunity is compelling: 120 million Africans receive international remittances worth USD 60 billion, and of all the world's regions, migration is primarily intraregional. Despite this, the 10 most expensive remittance corridors are all intra-African. Africans pay the highest transaction fees in the world: 12.4% versus a global average of 8.6%. A 5% reduction in fees could pass on an additional USD 4 billion to Africans. These high costs have contributed to a rise in informal cross-border remittances (via transport companies and hawala systems).* [9:50]

Remittances are person-to-person transfers and increasingly provide the financial basis for the resilience of communities in many parts of sub-Saharan Africa. Remittances are part of long-term existing support systems, built upon the traditions of communities and family relationships. These flows constitute a personal and private relationship and should be understood as part of resilience systems in a community-based context. Records and statistics of person-to person-remittance do not take into account the relationships that underpin them, or the purpose(s) of the transaction [10]. It is important to recognise that remittances are purpose-oriented and generally aimed at supporting well-being. A recent report that recognises the relationship between migration and remittances is the World Bank 'Factbook on Migration and Remittances 2016' [11].

Structure and Technology Use in Channelling Remittances

In order to study the phenomenon of remittances, I identified the remittance channels from the remitter to the recipient. Remittance channels can be distinguished as formal or informal. Formal channels are regulated and include banks and money transfer services. It is likely that in some parts of Africa, where mobile phone network coverage is patchy or their quality is relative low, that well-established informal non-mobile money remittance channels, such as by public buses and hawala, continue to be used. These remittance flows, by their nature, are outside the scope of the formal remittance statistics.

Remittance channels can be characterized based on the following criteria [12]:

- point of host remittance transfer – intermediary in the remitter host country;
- transfer interface – messaging and settlement Infrastructure; and

- point of recipient remittance transfer – intermediary in the recipient home country.

As remittance channels are increasingly integrated with the use of technologies, mainly in the form of the mobile phones, there are emerging dynamics that have not been previously accounted for. These opportunities grow exponentially with the growth in popularity and the usage of the mMoney. mMoney allows users to make and receive payments using mobile phones [12, 13]. Through mobile phone applications, remitters can use the services of money transfer companies [11]. mMoney allows money to be sent from any mobile phone, providing users with a remittance channel that is cost effective and reasonably secure. It is reported that mobile banking, on average, is about half of the costs of traditional banking [14].

mMoney services include: person-to-person transfer, bill payment, bulk disbursement, merchant payment, and international remittance [11]. Remittances within and between African countries have become increasingly important and, over the past one or two years, have been linked to international remittance platforms (illustrated in Figure 7). Figure 7 shows a modified diagram of International Monetary Fund remittance channels [12], including services like Azimo, Worldremit, Remitly, and Transferwise.

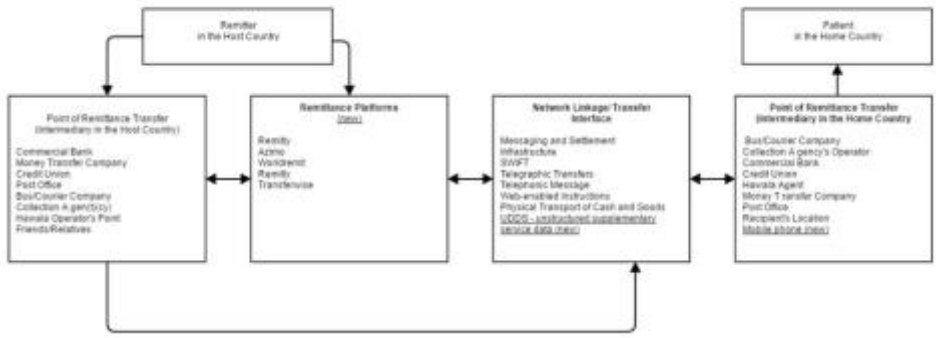

Figure 7. Platforms and remittance channels [1]

Most people in Africa, and certainly in rural areas, do not have access to a bank or bank accounts due to various constraints [15]. Traditional banks have long offered money transfer possibilities, including for customers who are not registered with the bank. Traditional money transfer companies such as Western Union (started in 1851, and offering money transfer services since 1871) and MoneyGram (started in 1940) have dominated the money transfer operations, including in Zimbabwe. More recently, e-infrastructure channels have opened up new possibilities such as Paypal, which started in 1998.

Instrumental to the realisation of the more integrated potential of remittances is the ubiquitous presence and growing usage of mobile phone technology [16]. Mobile e-infrastructures paved the way for the financial inclusion of business initiatives like the classic example of M-Pesa in Kenya [17]. M-Pesa was created in 2007 and by 2012 served about 14 million users [18]. Its services mainly reach rural or low-income populations. Sub-Saharan Africa is leading the mobile money services in the world, accounting for 52% of the world's mobile transactions in 2015 [9]. mMoney opportunities have given rise to new opportunities for financial technology companies and connectivity hubs, like MFS Africa. With the growing availability of mobile phones in Africa, and the technology leapfrog that they represent, other companies have also started to offer mMoney services.

New platforms have been developing in recent years: WorldRemit in 2009; TransferWise in 2011; Remitly in 2011; and Azimo in 2012 [19]. These financial technology companies offer a platform for transferring and receiving remittances through channels such as mMoney. Financial technology money remittance companies have taken a platform-oriented business approach in which they offer e-services utilising various transfer interfaces and e-infrastructures.

WorldRemit is particular visible in Zimbabwe, having partnered with EcoCash. It is a platform for money transfers, operating from the United Kingdom. A remitter has four options or transfer interface for sending money to different parts of world. When sending money to Zimbabwe, WorldRemit provides a remitter with four different channel options and remittances can be claimed in different formats. Meanwhile, the remitter is allowed three payments options: debit card, credit card or bank transfer. When sending money through WorldRemit to the United Kingdom, only the option of sending remittances to a bank account is offered.

Table 2. Overview WorldRemit channels remittances to Zimbabwe [1]

	Point of remittance transfer - intermediary in the remitter host country	Transfer interface in the form of service	Point of remittance transfer - intermediary in the recipient home country	Send to Zimbabwe
1	Bank	Bank transfer	direct to bank account	Steward bank, other banks in Zimbabwe
2	Bank	Cash pickup	10 locations	8 - Steward Bank, and 2- Kaah Zimbabwe
3	Mobile phone number	Mobile money	mobile money account	EcoCash
4	Mobile phone number	Airtime	mobile sim-card	Telecel, Econet, Netone

According to the South African technology news site IT-Web, in 2015, WorldRemit claimed that 78% of Zimbabwean adults have sent mMoney transfers and 67% of Zimbabwean adults have received mMoney transfers [20]. At the end of 2015, Zimbabwe had over 12 million mobile users in Zimbabwe with 6.7 million mMoney

accounts [21]. Postnet, the postal operator in Zimbabwe, operates a separate network for remittances, set up by the United Nations Postal Union (UPU) where transfers can be made internationally from a post office, for instance, in South Africa to a post office in Zimbabwe.

A Hospital Case Study in Rural Zimbabwe

According to Daniel Makina who researched remittances to Zimbabwe, ”a migrant remits an average of USD 40 per month, so that on the basis of a total remitting population of 1 million in South Africa, the total remittance flows could be as much as USD 500 million per year from that country alone, representing 10 per cent of GDP” [22:2]. A high portion of the Zimbabwean population of 14 million is working abroad. Data from the Reserve Bank of Zimbabwe show that the Zimbabwe diaspora remittance were USD 935 million in 2015, up from USD 837 million in 2014 [23]. This data only shows transfers via formal channels. In 2013, from a survey of 203 Zimbabwean remittance recipients based in Harare and Bulawayo and 164 Zimbabwean migrant workers in South Africa and Botswana, Nathan Mugumisi and Nqobizitha Ndhlovu [24] found that (only) 61% of remittances where received through such formal channels. The diaspora is a significant source of foreign finance inflows in Zimbabwe [25].

In 2015, the Zimbabwean Ministry of Health and Child Care (MoHCC) allocated USD 301 million to health care, which constituted 6.3% of the national budget. This was a 10% decline compared to the USD 337 million allocation in 2014, which constituted 8.2% of the national budget in 2014, and even less than the 9.9% allocation in 2013. In practice, real funding might be (much) lower as the Zimbabwean government is experiencing a severe shortage of currency. Most of the financial resources are used to pay for human resources and management costs in the health care system. For running expenses, apart from incidental government contributions, hospitals and clinics in the periphery primarily rely on user fees to keep functioning [26]. Remittances, therefore, constitute an important source of payments to cover patients’ out-of-pocket expenses.

The analyses of the financial coverage of healthcare systems does not recognise the significance of remittances for healthcare. However, in Zimbabwe, health care, especially in peripheral settings, is thought to be extremely dependent on remittances. Hospitals rely on user fees to provide health care, charging ‘direct user fees’ for consultation, admission, treatment and investigation. These are part of the out-of-pocket expenses of patients, and are additional to indirect costs like transport and lost income. Despite the clear relevance of remittance funding of healthcare services for less advantaged communities, research into health system financing pays only gives scant attention to this source of funding.

On this issue, I examined the situation in a hospital in a rural district in Masvingo Province, in Zimbabwe. An analysis of the out-of-pocket payments for the health services revealed a lack of integration of remittances. Figure 8 shows a simplified scenario that a patient must follow when paying for care-related costs. Several actors are not included in the scenario, such as: (a) the government who regulates and intervenes in various ways in both the remittance company and the hospital, (b) pharmacy services and companies, (c) insurance companies, and (d) institutional donors. Although, in general, the African rural context is dominated by the non-availability of monetary resources, mMoney is present and prominent and, therefore, instrumental in facilitating the flow of monetary resources for rural healthcare provisioning.

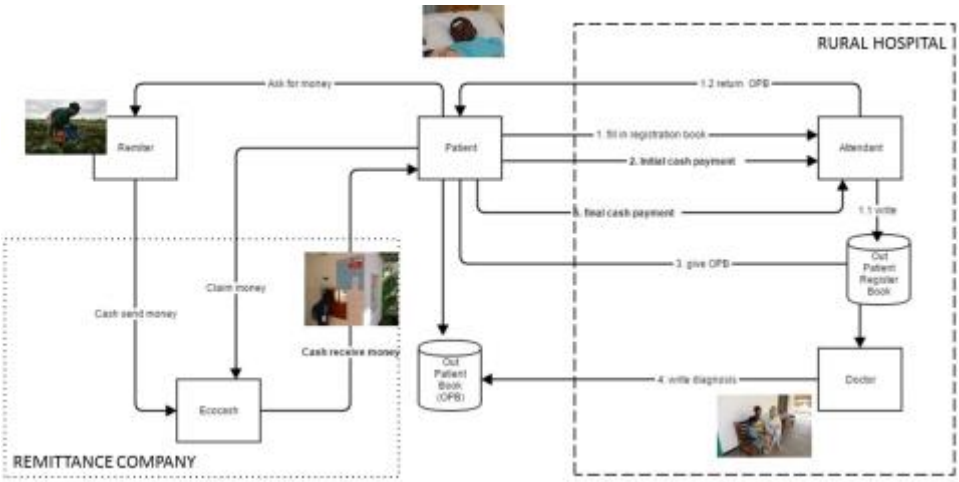

Figure 8. Four actor interaction without the integration of remittances in a rural Hospital [1]

Mediating actors between remitter and recipient play a significant and enabling role in the remittance process. Their processes depend on available e-infrastructure and regulations that facilitate and provide safeguards for these remittances. The money the remitter sends is an expression of love, of 'being together'. This notion of sharing is readily understood in African philosophies. The remitter not only sends money, but with the money, there is interaction on the actual event, there is an expression of 'life together'. Such information, advice and other messages interact with ideas originating from the contextual setting of the remitter. In this way, the remitter's expectations of the access to, quality and effectiveness of health care services and the assessment of the remitter on what constitutes 'good health care' could be influencing the decision-making process of patients.

Figure 9. A 'taxi' in South Africa. Picture taken by the author, 24 March 2016.

Figure 9 shows a 'taxi' advertising the services of mobile operators (Cell C, South Africa and EcoNet, Zimbabwe) for remittances from South Africa to Zimbabwe. I took this picture on the South African highway N1 near Polokwane. It is the texts of the advertisements that tells something about the purpose of remittances. One text reads: 'Call Home: life and love have no borders'. This advertisement shows the value that underpins remittances: the intention of unconditional love across borders [27]. Such texts tell something about the support transmitted with remittances.

The support provided through remittances carries much more than just financial means. It carries a connected responsibility of care for someone's life, carried out in the context of communal love. It is in this understanding that remittances can be seen as more than just transfers of financial resources, but as carrying meaning and expressing a desire for access to quality health care, among other things. It is this desire to be connected, to express communal responsibility and to be part of a loving community that provides the transformative power through which the health care services may be improved.

Remittances and the Counter Narrative of the 'Hunt'

In the short book chapter 'Treasure Hunting Beyond Familiar Shores' in the book '"C'est L'Homme Qui Fair l'Homme" Cul-de-Sac Ubuntu-ism in Cote D'Ivoire', Francis Nyamnjoh [3], introduces a dramatic and perturbing view on African migration deduced from an anthropological observation of a popular TV series in Cote d'Ivoire. Based on this series, he portrays Africa as being looted by 'hunters' from far-away lands. The loot – treasures such as resources and labour – has been abducted from Africa continuously since the middle of the second century (around 1,500 AD). He depicts this as a 'hunt', initiated

from the West and involving the meddling of Western powers in Africa in an uninterrupted period of domination reaching beyond geographical borders.

In an antithesis of such hunting on African grounds by foreigners, Nyamnjoh positions a counter narrative of migrating Africans as hunters in far-away lands. Based on the TV series, he regards African migrants as being hunters in distant villages and towns, hunting in the lands of the hunters of yesteryears. In this way, he shows how opportunities and opportunism can co-exist where the spoils of the hunt are sent off to Africa.

Analysing Nyamnjoh, Artwell Nhemachena and Munyaradzi Mawere highlight how Africans allows for the convivial and reciprocal treats of African values to fuel the question of (the paradox of) Africans being

> *treated as scum or pests including by nations that have formerly exploited them during trans-Atlantic slave trade and colonialism. On this note, Nyamnjoh calls for the need to observe the exigencies of reciprocating and sharing on 'common grounds' of justice what empire accumulated, often illegally and unscrupulously*. [28:533]

Bridging Technology and Culture

Drawing on Nyamnjoh's counter narrative of the hunt, I deduce a designation of remittances to signify the transfer of the spoils of the hunt by hunters who ventured out of Africa. This description counters the general view that remittances are principally linked to the self-centred motives of the remitter (cf. [29]). In my daily observations in the African societies I have lived in I recognise that the process of remittances aligns with existing, contextually-embedded socio-economic support systems. These systems are built on the long-term traditions and care-taking of life in communities and family relationships. For example, I observe that remittances align with the local processes for negotiating and sharing resources. These involve oral communications, now extended by means of information and communications technologies like the mobile phone and 'over-the-top' services likes WhatsApp. Similarly, financial communications align with the processes of oral budgeting [30].

In many African societies, especially in rural areas, the fluidity of the economy is regulated through relationships. Remittances are part of an African, relational system for addressing basic issues around choice and resource management, appreciating both social and material forms of capital. In this view, remittances have both private and

public implications. For instance, their various forms (for example, a digital/mobile form) make resource allocation efficient by providing for fluid mediums of exchange and bolstering participation in the local economy. In that respect, remittances provide for 'ways out' of an economic system that is dominated by extra-local agents and hindered by low money supplies and neglected social capital.

Remittances can be seen as a continuation of the long-term, local behaviour that ensures that investments benefit 'wealth in people' over 'wealth in things' [31]. In his book, Francis Nyamnjoh [3] recognises African values as constructing the case "for the need to observe the exigencies of reciprocating and sharing on 'common grounds' of justice of what empire accumulated, often illegally and unscrupulously." He develops the argument that such reciprocation has not yet occurred, by providing a comprehensive listing of numerous past and current disempowering behaviours, singling out cases of unscrupulous power meddling by France and referring to its European neighbours.

Although there appears to be unwillingness by the West to address the underlying systemic injustices while continuing its abuse of powers, Nyamnjoh shows the importance of a continued engagement with counter narratives and different explanations of realities from a non-Eurocentric positionality in history and culture. Such pursuits can facilitate new understandings and new words to inform and sustain a more diverse, albeit unified, future.

Of course, in a battle, the story of the hunter is being celebrated. In the current geo-politic world, the hunter is located in the West. It is in this dominated setting that the narrative of the hunter's area being hunted inspires a poignant perspective from the subaltern, unknown by the dominating hunter. In this story, remittances are an indication of remarkable success in a setting where globalisation is providing for a hegemonic and enforced narrative, disabling and disempowering for Africa. In effect, due to its Euro-narcism – emanating from a view of 'Europe' as a superior civilisation – from an African perspective, globalisation can be seen as just one part in the hunt of the West in the Rest.

The picture of the hunt that Nyamnjoh paints is appealing, as it frames migration as part of mobility with a political, practised and mediated meaning [32]. Nyamnjoh states "Anyone's mobility can only be accommodating to the extent it is accommodating" [3:26]. He reminds his readers that the Western form of mobility has not been accommodating of African agency. The view of African migration as being a counter movement, responding to the ongoing plunder of Africa by foreign agents and positioned as a hunt into the area of the hunter is, of course, only one of many

perspectives on this complex issue. However, in this view, repressive measures only serve to feed this narrative, as it reinforces the disparate views in the current clash of paradigms (see Chapter 6).

Unfortunately, it appears that only Western voices are being recognised, resulting in a single narrative of a West being violated by migration. This story drones out the history of the past and the current leeching of resource and labour from Africa to sustain, for example, the availability of cacao and natural resources crucial for mobile phone production. However, tales of border-violations, the geo-political meddling aimed at perpetuating inequalities in power bases, and the barriers to allowing multiple versions of realities to co-exist continue to be told by those in subalternaty. The disrespecting of other voices disempowers, for instance, the incorporation of the real opportunities provided by Ubuntu, worldwide.

In the meantime, the hegemonic (Western) voice aims for the institutionalisation and capitalistic use of remittances, in effect aiming to appropriate the benefits of (neo-liberal) control and aggregation of this resource stream. However, this view overlooks over the complex nature of the African methods of resource allocation and how traditional ways of providing for economic liquid markets are unreconciled with a western, capitalistic schema. Therefore, a pure capitalistic approach to remittances misses the real picture and are prone to be detrimental. The impressive levels of remitting, I suggest, show how Africans in the diaspora are committed to Ubuntu. They cannot be explained through capitalistic financial models based on neo-liberal thought and individualism. Reports that are unable to incorporate such contextual and embodied knowledge are missing the point.

Nyamnjoh's analysis of the TV programme 'C'est l'Homme Qui Fait l'Home' paints the gloomy picture of the toxic mix of opportunism (urban) marketplaces, in a paradox that comes into play in African culture. It is only by understanding both economic frameworks – the one facilitating individualistic choice through (predatory) markets and the other facilitating communal systems in an empowering and convivial gifting/sharing relationality – and the underlying worldviews, that understanding can be gained and reconciliation of the two could be attempted. Only when both systems are understood with respect, equality and reciprocity can there be a trust base for communication and an intimacy for cooperation and collaboration.

Nyamnjoh's observations provide an alternative view of the reasons for resource transfers. The narrative of a hunt provides a platform for discussions about resource flows (which, in certain instances are called 'remittances'). It points to the need to make room for discussions allowing for various (world) views, with an outcome that aligns

with the adagio ‘your success is my honour’, and aiming for sharing of the outcomes in commons.

Conclusion

Mobile phone technology is currently revolutionising remittance transfers in ‘developing countries’. This impacts on payments for healthcare, among other things. Nyamnjoh [3] describes “the current dominant approach to studying and relating to mobile Africans is problematic”. Further, he provides a poignant picture that in itself is an African narrative, he frames a certain kind of mobility (going to far-away places to gain resources and remit back) as a ‘hunt’. The metaphor of a hunt links in with Africa’s past and constitutes a response to the ongoing plunder of the African lands. Importantly, it conveys a recognisable African agency. In this narrative, I propose, the level of remittances can be seen as an indication of achievement.

In this chapter, I link remittances to this hunt by Africans in far-away lands. This narrative aligns with the realities in rural Southern Zimbabwe and provides a way to look at the existence and utility of remittances:

- the existence of remittances shows a successful hunt; and
- the use of remittances by the local community aligns African values.

Remittances are a source of fluidity of mediums of exchange, aided by mobile technology, in a system devoid of other means.

The counter narrative of Africans hunting beyond African lands, in the previous hunter’s territory, and the recognition that this view is not promoted, raises questions about cognitive and cultural paradigms beyond the dominant Western, Euro-narcissistic narratives. This counter narrative continues to highlight pertinent questions regarding colonial history and how the legacy of structures from colonial and violent histories have created barriers that impede change and equal participation in political and geographical ways. Nyamnjoh shows how the narrative is sustained from an African position in African philosophies due to the disrespectful and non-distributive way that the West harvested and keep its spoils from Africa.

This chapter presents a contribution that appreciates variety and multiple, located, and partial perspectives that must be included in the discussion in order to understand remittances. As the meaning is subject to its location in geographically-diverse environments, the meaning(s) of remittances are encapsulated in a variety of narratives that depend on the positionality of the narrator. The harvesting of such embodied

knowledge asks for conviviality and mutual respect and a respect of the agency of all hunters. From such an understanding of epistemology, multiple meanings represent various forces. In true globalisation, we must review our multiple and collective identities and mediate our individual agencies while finding a new language with which to describe our emerging and truly collective self.

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Part III

The Age of Super-Colonialism and an African Big Five

Contents

Chapter 13

The Age of Super-Colonialism[188]

Contents

[188] This chapter is based on the chapter 'Pillage, Plunder and Migration in Africa: The Expatriation of Riches and Remittances', co-authored With Munyaradzi Mawere and published in 2016 in *Underdevelopment, Development and the Future of Africa* [1]. This work is based on original research conducted by me, on which I reflected with my co-author. For the purpose of maintaining the flow and consistency with other chapters, 'we' has been changed to 'I' throughout when referring the authors.

Introduction

In the previous parts of this thesis, I have observed that the introduction of technology in rural Africa is hampered by material and practical clashes in perceptions of being. The ontological and epistemological understanding determines what is feasible to do in a given reality. I have observed the fundamental clash in worldviews in which the African contexts understand being as a belonging within the community and where the community is the platform for decision-making and participation. Local authority is crucial in legitimising the space for the introduction of technologies in its role to protect the community. The figure of the western innovator is balanced by the needs of the here and now in the community and the community may take its own pace in determining how to go about accepting and implementing proposals from the outside. I have observed that the demand, involvement and agency of the community is critical to any activity that aims to import technology into an African setting.

I have also identified that very real problems underpin the difficulties involved in introducing technology in Africa. In fact, infrastructures – both physical and mental – that are based on colonial meddling remain predominant and continue to cause difficulties for Africa in connecting with the rest of the world. I have also observed the lack of interest in a distinctly-defined African engineering and its potential. Such potential is often overlooked, even if it the underlying capacity could be critical to the embedding of technology in African realities and experiences. Finally, I have observed a potential to create and operate technologies that are aligned with the environment, context and needs in Africa. Such technologies have the ability to be of interest elsewhere but are mostly denied international acclaim.

But why is this reality denied? Why is the worldview of foreign Western visitors based so firmly on preconceived ideas – so much so that the mismatch of communication with the local community is, in my observation, the principle source of failure of many projects? Why are these miscommunications between foreign actors and the local community not resolved? In Part III, I harvest the richness of reflexivity, involving community members in its articulation in, and present the contents of my reflexivity as a meta-reflexive deduction. Sensitised by the contextual critique and framing of both the research and theories of knowledge, harvesting the evidence indicated in Part II, in Part III I present the results of my research, in a sounding out of the meta-aspects and articulation of my aggregated understandings and examples.

This particular chapter is based upon a literature review triggered by my observations ‘in situ’. In this chapter I explore the ways in which the local community, in an African context, is situated within the context of the world system and, using the concepts of

Orientalism, imperialism and colonialism, I explore how this history affects the current relationship between the West and African communities.

Phases of Colonialism

Colonialism has been especially harsh in Africa. Following the liberation of most African countries in the 1960s, a new era was entered, sometimes referred to as the post-colonial era. However, the question can being asked whether colonialism is finished. In an overview of the various phases of colonialism the author Sabelo Ndlovu-Gatsheni [2] observes an ongoing colonial relationship between Africa and the West. In his analysis he distinguishes six phases in the exploitation of Africa, which continue into the present:

- **The Age of Slavery (Post-1492)**: The start of the modern world system and new international order, with Africans being abducted, transported and sold as human commodities;
- **The Age of Colonialism (Post-1648)**: The subjection of African areas to foreign rule, following the conceptualisation of the nation state in the (European) Westphalian peace agreements;
- **The Scramble for Africa (Post-1884/85):** Starting at the Berlin Conference, with the institutionalisation of African land according to foreign concepts through mercantile, missionary, academic and military conquests;
- **The Age of Neo-liberalism and Capitalism** (**Post-1945)**: Set in the post-war global economic system established at the Bretton Woods Conference;
- **The Age of Globalisation** (**Post-1989):** After the fall of the Berlin Wall and the end of the Cold War, through enhanced connectedness facilitated by advances in global communications and air travel; and
- **The Age of Securitisation (Post 2001):** Sustained by increased anti-terrorism measures post '9/11' and the fall out of war, economic austerity and, subsequently, migration.

The pillaging of Africa initially took the form of slavery. This was followed by an unprecedented wave of plunder and the exploitation of natural resources. During the classical colonial era (from the 16th century to the mid-20th century), mercantilism quickly turned into outright ravaging. At the Berlin Conference in 1884–1885, Africa was carved up between France, England, Germany, Italy and King Leopold II. These colonial powers enforced Western-centric rules in relation to governance, finance, medicine, culture, religion, and education. Colonial administrations ensured that their actions were supported by (thought) control through a mix of administrative measures, western-centric education, and racist theology [3].

After the ushering in of 'independence' of African nation states in the 20th century, colonial behaviour continued, along with imperious meddling by countries in the West – including those harbouring capitalist elite in Asia – in the affairs of nation states in Africa. Coloniality was extended by the collusion of corporations with international organisations. International political structures, such as the European Union, were ominously influenced by colonial jostling and jiggling. For example, President Charles de Gaulle actively blocked England's entry into the European Economic Cooperation (EEC) in an effort to keep discussions on England's colonies at bay [4].

It must be noted that all of the events that marked the start of each age happened outside of Africa, without any constituting role for Africans and without seeking African input. Sabelo Ndlovu-Gatsheni recognises continuous resistance to these forms of domination, but deduces that "while Africans have actively contested Euro–North American hegemony throughout these periods, they have not yet succeeded in breaking the strong global technologies of coloniality that continue to prevent the possibilities of African agency" [2:331]. Therefore, he calls for a "deepening [of] the decolonization and de-imperialisation of the international order in the twenty-first century" [*ibid.*], if Africa is to wean itself from the prejudices of the capitalist elite.

On top of these periods, I would like to add a seventh: the Age of Super-Colonialism. As will be explored later in this chapter, super-colonialism is a scaled-up version of colonialism, perpetrated, not only, by countries sustaining the capitalist elite, situated above the Brandt Line [5], but also by corporations and international organisations. Its existence is evidenced by the workings of the global monetary system, international trade treaties, and the monopolisation of cyberspace, among other things, all of which keep Africa subjugated to the West.

In introducing the concept of super-colonialism, this chapter investigates the plundering of resources (both material and human) from Africa and how these have downscaled development on the continent, especially south of the Sahara. Basing on the findings, I argue that Africa's underdevelopment has been instigated and perpetuated by the capitalist elite. It is further argued that if this draining of Africa's resources remains unchecked, the underdevelopment of Africa is likely to worsen in the coming years to a level where Africa would need a 'crane' to lift it out of the crevasse.

The Ongoing Expatriating of Riches from Africa

Exact figures for the yearly inflow and outflow of funds from (sub-Saharan) Africa to the rest of the world are difficult to ascertain due to the general paucity of data available on

Africa. Nevertheless, general reports invariably show large deficits, to the detriment of Africa. For reasons best known to those who record data, many of the outflows are concealed. However, in 2014, Natalie Sharples *et al.* [6], in collaboration with a whole range of organisations, endeavoured to lift the veil on these figures to curb the biased consumption of data by members of the public. In their overview study on sub-Saharan Africa, these researchers reported a yearly inflow of USD 134 billion – predominantly in the form of loans, foreign investment and aid – and calculated the net outflow to be USD 192 billion – mainly in the form of profits made by foreign companies, tax dodging and the cost of adapting to climate change. These figures conservatively put the loss for sub-Saharan Africa at USD 58 billion per year. The Africa Progress Panel, which consists of ten eminent persons interested in Africa's agency, has confirmed these alarming figures [7].

Studying the so-called 'developing' countries more generically, the 2016 United Nation's World Economic Situation Prospects (WESP) report [8], gives an account of the remarkably volatile private capital flows in relation to 'developing' countries. In 2015, the UN recorded a dramatic fall in foreign direct investment in these countries. Portfolio investments – the buying of stocks and shares – went negative, depleting them of USD 48 billion. Other private investments, including interbank loans, also collapsed. The private market expatriated a whopping USD 827 billion out of developing countries to so-called 'developed' countries in 2015. This outflow was a continuation of persistent outflows since 2011. In an effort to keep afloat and avert crises, developing countries sold off national reserves on a significant scale. These "trends were observed in virtually all major emerging economies", the WESP report notes [8:85]. This loss of financial resources on the part of Africa has always been accompanied by the loss of human capital of value and strength, who in the name of 'seeking greener pastures' are enticed to leave the continent for the West. The words 'value' and 'strength' are emphasised here to clearly show that it is not the 'ordinary' people who usually leave Africa, but the highly talented and most able-bodied. These educated, skilled and often young people, migrate and many never come back. This trend has been visible for quite some time and is likely to continue long into the future.

Coming back to the outflow of financial resources, the following list can be deduced from reports, with a quantification of their estimated financial magnitude at the 2014 levels by Sharples *et al.* [6], for sub-Saharan Africa:

- Debt payments: USD 21 billion per year;
- Repatriation of multinational company profits: USD 46.3 billion per year;
- Illicit financial outflows: USD 35.3 billion per year;

- Illegal fishing and logging: USD 1.3 billion and USD 17 billion per year, respectively;
- Brain drain: USD 6 billion per year;
- Climate change (adoption and mitigation): USD 10.6 billion and USD 26 billion, respectively;
- Loans: USD 23.4 billion per year.

Of course, outflows are not restricted to actual monetary flows, as even money comes in various forms. They can also take the form of illegal trading in ivory, diamonds or the under-pricing of mineral resources [9]. Nevertheless, even these conservative estimates show gigantic financial outflows. The Africa Progress Panel labelled this practice as the plunder of the African continent [7:11]. With the increasing availability of information and communication technology, digital networks and digital services (especially through mobile networks and devices) represent a new toolset with which to facilitate financial flows, including illicit flows [10]. New technologies are giving rise to new forms of illegal finance, for example, human trafficking [11], and can obscure illicit financial flows at each stage. ICTs can facilitate the earning of money illegally, the transferring of funds illegally, and/or facilitate the illegal use of money. South African Minister of Finance, Pavin Gordhan acknowledge this when he said: "we have to deal with sophisticated crimes or abuses which can be committed by highly connected people with extensive resources" [9:np]. In the sections that follow, the issues raised here will be discussed with a focus on natural resources and human capital (including in the form of the brain drain).

The Hustling of Africa's Resources for Technology

Imperialism forces Africa to rely on primary natural resources [12]. Therefore, tax evasion and illicit financial outflows, in conjunction with mining and poaching, are particularly troubling. Realising that most of the (natural) resources come from Africa, stakeholders in the West (by hegemonic scheming in world markets) ensure that natural resources are undervalued in a systemic manner [7]. Various and complex tactics are deployed, among which is transfer pricing. These tricks played by the capitalist elite against Africa and other so-called developing countries ensure that the latter remain entrapped in the chasm of underdevelopment and are, therefore, easy to prey on.

The documentary Stealing Africa – Why Poverty? [13] shows how poverty, extensive environmental damage, and under-investment in local agency and oversight, sustain very high financial outflows from copper mining in Zambia. The documentary narrates how Western individuals and their communities profit obscenely from personal and institutional dealings in Africa [cf. 14]. The Bank of Zambia, in its Direction of Trade Report, 1st Quarter 2016, confirms that "Switzerland, South Africa, China and Congo

(DR) maintained their positions as the country's four major trading partners" [15:3]. A critical question comes to mind: why is landlocked Switzerland the second major trading partner of Zambia? This trade report shows that copper to Switzerland is the main reason for the latter's partnership with Zambia [15:4).

In their report titled Copper Colonialism, Samarendra Das and Miriam Rose [16] describe the case of Vedante and its dealings with Konkola Copper Mines (KCM). In a video, taken at the Jain International Trade Organisation meeting in Bengaluru, India in March 2014, Vedante's Chief Executive Officer, Anil Agarwal can be seen explaining how he bought KCM for USD 25 million and stated that "It's been 9 years, and since then, every year it is giving us a minimum of $500 million plus $1 billion every year; it has been continuously giving back" [17:online]. However, in the same period, in Zambia itself, KCM reported making a loss [18]. KCM continues to be subsidised by Zambia in the form of an electricity supply charge at 54–74% of the real cost [19].

The Brain Drain of Engineers

The magnitude of Africa's brain drain is difficult to pinpoint, as there is no registration system to capture related data. In addition, some people who leave Africa for Europe do so illegally such that their records are never captured. From 2000 to 2005, an estimated 440,000 people per year migrated from Africa, most of them to Europe [20]. It is worth noting that besides the mass 'exodus' of African people to Europe, mass migration from Africa has been happening since at least the 1960s, with the main source countries being Morocco, Algeria, Tunisia [21] and, recently, Zimbabwe. The million-dollar question, however, is: Why are these people leaving Africa en masse? Before I proffer any reasons for these movements, I should underscore that the reasons are inexhaustible and that I cannot explain them all in detail in here. Hence, I will examine only a few.

The narrative that 'education outside of Africa is better than inside' is persistent [22]. This narrative combines with the lure of scholarship opportunities [23] and continues to entice thousands of Africans to travel outside the continent for academic development. Touted as a significant expansion of training cooperation, in 2013, while in South Africa, former US President Barak Obama announced the Washington Fellowship for Young African Leaders, "a new programme that's going to give thousands of promising young Africans like you the opportunity to come to the United States and develop your skills at some of our best colleges and universities" [24:online].

In the background, since 2007, US-centric professional engineering organisations, such as the Institute of Electrical and Electronics Engineers (IEEE), which claims to be the largest professional organisation in the world, and the Semiconductor Industry Association have been lobbying the American government for the "retention of highly educated immigrants as part of a broader competitiveness and innovation initiative" [25:np]. In their narrative, these organisations state that "51 percent of master's and 71 percent of Ph.D. graduates in electrical and electronic engineering from U.S. universities are foreign nationals" [*ibid*.]. In a US study that surveyed foreign-born science, technology, engineering and mathematics (STEM) graduates, Xueying Han *et al.* [22] found that 80% of these graduates do not return to their home countries. Given their status as skilled, they are usually lured with good jobs and remuneration, among other benefits, to remain in the USA. In fact, declaring that they have the interests of engineers worldwide at heart, IEEE, through its US branch, lobbies for foreign graduates to remain in the USA for work [26, 27]. One then wonders if the offering of scholarships to Africa's best brains is done in good faith or is simply a clever way of stealing African talent. Jeffrey Garten answers this question. Garten, Under-secretary of Commerce for International Trade in former US President Bill Clinton's administration, considers there to be a 'Global War for Talent' and states "as the U.S. economy gains strength while other countries face roadblocks to growth, now is the time for America to engineer a massive raid on the brain power abroad and capture the world's scientists, tech-savvy talent, engineers, and mathematicians" [28:online].

In the meantime, China is carefully testing the waters, inviting African students to the Huawei learning centre in Shenzhen. This is part of a 'Seeds for the Future' programme, which connects global students to China. This may indicate that China is moving in the direction of the United States in trying to 'steal' African talent.

In private conversations in 2016 and 2017, when so prompted, professors from European universities confirmed that they know of colleagues who are interested in 'international exchange' in an effort to get the best brains working for them, in their Western-based laboratories. It is argued here that, while international exchange itself is positive and progressive to a certain extent, the exchange should always be reciprocal and done in good faith. It is further argued that it is only when international exchange is reciprocal and done in good faith that global development can be achieved.

That aside, it is noted that there is also an internal brain drain, inside African countries. In sub-Saharan Africa, highly-trained people are pursuing jobs in the headquarters of government ministries, trying to land jobs with well-paid international non-governmental organisations (INGOs), or migrating for work to one of the African metropolises. For instance, in many African countries, high-performing medical doctors

are sucked up by health departments under respective ministries or INGOs or to participate in workshops and conferences with 'cooperating partners', which means they are no longer contributing to the administering of health care to individual patients. Health institutes in rural and semi-urban areas are depleted of professional staff, who have either left or are engaged in a constant stream of workshops or training sessions or enrolled in (international) academic studies. In addition, some African countries seem to be bargaining more than others. South Africa, which seems to have adopted some of the same methods as the United States, is fast attracting high-profiled skilled personnel from other countries in sub-Saharan Africa. Already, Zimbabwe is losing hordes of academics and professionals on a yearly basis, especially now that the Zimbabwean economy is experiencing difficulties.

Dependency on Foreign Capital for Technological Innovation

Neo-liberalism and capitalism have put in place systems that allow 'rent-seeking behaviour'. Achille Mbembe [29] describes rent-seeking as a behaviour that is part of patterns of predation, neo-patrimonialism, and with an urban bias, that exist due to the legitimacy deficit in African states. This deficit, Mbembe argues, is inherently due to the fact that most of the contemporary institutes and practices were grounded in, and implemented by, colonial powers. For example, Samarendra Das and Miriam Rose [16] describe how in Zambia the Public Order Act, which was enacted in 1955 to ensure the continuation of extractive colonialism, is still in force – and used – in Zambia today. In Zimbabwe, the Witchcraft Suppression Act Chapter 9:19, which was put in place by the colonial government on 18 August 1899, was revised for the first time only in 2001 (and then again in 2006) – and even then only after a struggle.

Contemporary rent-seeking involves using the (intellectual) outputs of costly technological innovations, which, in turn joins both producers and users in a dependency on capital. In view of this vice, to be able to innovate, one is coerced to adhere to and comply with the wishes of the capital. Monopolists extract their profits from such dependence. This capitalistic system, seemingly takes away the ability of the individual to behave in a humane manner, according to moral values [30]. This appears to hold true for imperial companies and countries in the West, which continuously leech Africa as an imperative for their survival in a manner that perpetuates the dependency syndrome. The system instils anxiety and fear in those who do not comply. At the individual level, there appears to be no way to act against this, and through such disempowerment, agency is demolished.

In the technology sector, Bruce Krogh and Jonathan Ledgard [31] describe the disheartening prospects for Africans interested in playing any sort of role in shaping the technologies driven by the tech titans of Silicon Valley. They paint a bleak picture, showing a general lack of interest and attention, the absence of a focus on job creation, and the dilapidating and discouraging environment for non-Westerners in Western settings. Further, they describe how the persistent lack of real collaboration is over-trumpeted by constant messaging about training programmes and start-up competitions. Likewise, Linda Nordling [32] paints the same picture in the health and pharmaceutical arena. Although local research is being supported, such research invariably prioritises research work according to Western epistemology, and research centres are managed and supervised by Westerners.

The Age of Super-Colonialism

The Age of Super-Colonialism has its roots in colonialism and so-called post-colonialism. Colonialism can be understood as the policy or practice of acquiring either full or partial political control over another country by establishing settlements in it while exploiting it economically [33]. Colonialism results in the creation of what is known as a 'colony' – a country being controlled by the coloniser. As introduced in Chapter 5, post-colonialism is generally understood as an analysis, explanation and response to the cultural, social and political legacies of colonialism. Post-colonialism, therefore, talks about the human consequences of external political control and the economic exploitation of 'indigenous' peoples and their lands. It seeks to critically question and address, in varying ways, the injustices planted by the hegemonic process of colonialism. But while a country is thought to graduate to a post-colony, neo-colonialism may remain, directly or otherwise. Neo-colonialism is the use (direct or indirect) of political, cultural, economic or any other form of force to control or influence other countries, most especially former colonies or dependencies.

It is worth noting that neo-colonialism may remain resiliently planted within systems of the former colonies or dependencies, even while the process of decolonisation and post-colonialism are taking place. What is clear in both colonialism and 'neo-'colonialism is that there is always a set of unequal relationships between the colonial (or the former colonial) power and the colony (or the formerly colonised), and, likewise, between the colonialists (of former colonialists) and the colonised (or the formerly colonised). This is what post-colonial studies would like to address in an attempt to give birth to processes such as decolonisation and reconstruction.

However, these definitions are all approached from a Western positionality, a Western point of view. In that view, colonialism is 'gone', and an agency is projected on the

‘previously colonised’ areas to set their own pace and direction in a post-colonial era. For example, when we talk of decolonisation, one observes that the former colonialists are always at the forefront of the whole process. One wonders how a ‘hyena’ can all of a sudden turn itself into a ‘sheep’ and befriend the latter to the extent of not wanting to eat it anymore, but to help it by licking its ‘wounds’!

It is from this analysis and from the positionality of African communities that it is argued that colonialism never ended. Perhaps it had a hiccup directly after ‘independence’. However, the period since then has just been a time of ‘resetting’, as the beneficiaries of colonialism learnt to get around the new hurdles. We have now entered the age of ‘super-colonialism’. I define super-colonialism as the scaled-up colonial practice of subjugating other people and groups for the benefit of colonial agents.

Therefore, not only did the independence of African states not bring about decolonialisation, colonisation has continued, facilitated by the global village narrative and the growth of international travel and communications networks – which can generally be referred to as ‘globalisation’ [2]. The super-colonialists do not have to travel physically anymore, they can just send their memes through and over the ‘digital highways’, or travel to the continent overnight, meet during the day, and leave again within a few hours. The signs of super-colonial practices appear everywhere. Africa has entered a new era of colonial control.

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Chapter 14

‘The Big Five’ Perspectives on African Virtues

Contents

I argue that the fundamental traits of behavior seem highly resistant to change. But their consequences can alter radically, because the context itself is constantly dynamic.
Daniel Miller [1:349]

Introduction

Michael Burawoy, in his extended case method [2], describes the fourth phase of the method as 'reconstruction'. In this chapter, I construct models and frameworks that appeared, were grown, and solidified during my elongated interactions in the African lived environment. Their emergence is intrinsically connected to my reflexive, participatory actions, the co-authoring of texts and presentations, and the looping of participatory action research (from learning via changing, to acting and to learning again, over and over). Of course, the wording, the materiality, and the denotations of the theories are shaped by my grounding in both natural and social sciences, as well as by my beliefs.

In this chapter, I introduce *the Big Five* perspectives. The concepts underlying the Big Five have been constantly evolving in my analysis of the empiric evidence, with deposits in a multitude of publications and presentations, in Africa and abroad. The concepts have been evolving, presented and scrutinised over several years in many university and conference settings, for sharing and interaction purposes. Thus, these constructs have been 'tested' all over Africa, Europe and the USA.[189]

I have observed that the introduction of technology in rural Africa is hampered by material and practical clashes in perceptions of being. The Big Five represents my proposal in the form of the hypothesis of five distinctive areas of virtues, which provide a possible perspective for anyone engaging in interactions in African communities. Through the Big Five, I aim at providing a lens through which to understand the locally-embedded meanings when living, working and interacting with technologies in sub-Saharan Africa. The next chapters elaborate on the first three parts of the Big Five – ubuntu, oratio and relatio – with the last chapter, Chapter 16, providing a conclusion to the work.

[189] Appendix 3 contains a list of presentations and encounters with peers and students, discussing these models. All presentations can be accessed and reviewed at http://www.vanstam.net/gertjan-van-stam.

Perspectives on African Virtues: 'The Big Five'

The Big Five contains perspectives on the *values* that, I saw to be helpful for interactive engagement (e.g., in technology) in communities in sub-Saharan African contexts. In Africa, I am confronted daily with the fact that communal forms of meaning making are the focus of community life. Embodied interaction[190], I have witnessed, is the main vehicle for synergising meaning in the African empirical world. It is in *interactions* with worldviews, histories, and the context in the particular lived environment of the community that a 'knowing' is constructed.

In an efforts to describe African beacons of meaning-making – or epistemology – I derived *The Big Five*: '*ubuntu*' (communal love), '*oratio*' (communicating embodied knowledge), '*relatio*' (relational resource allocation), '*dominatio*' (maturity through forgiveness and covenants), and '*animatio*' (the continuous present moment). I put forward these perspectives on African virtues for use in daily encounters, to guide embodied (research) practices taking place in the rich, complex and multi-facetted realities I have observed in rural Africa. They provide a casing for conversations on perspectives that illuminate the art of *living* in an African place. It is my hope that they will guide both 'insiders' and 'outsiders' (including researchers and practitioners) in the process of engagement and provide conceptual tools to help answer real-life questions.

The Big Five emerged during reflection and discussions at the intersection of all my experiences in philosophy (see Part I) and politics and power (see Part II). As human beings, Western or African, we are all purposeful [4] and "all humanity across the world is naturally endowed with reason and the ability to generate knowledge" [5:194]. Recognising this, *the Big Five* represent the outcome of my search for understanding on how Africans have countered colonisation and the ongoing plunder of their resources over the decades. I deduced these virtue epistemologies mostly while ruminating over the non-discursive aspects of situational (embodied) knowledge. In my experience, as shown in Part II of this work, the discursive part of situational knowledge has been heavily influenced by coloniality, in the English language that is. As I cannot access discursive

[190] Embodiment, in my use of the word, does not focus on 'the body', but on the interactions between people, while they are present. Paul Dourish wrote about embodiment as follows "Embodiment is not a property of systems, technologies, or artefacts; it is a property of interaction. It is rooted in the ways in which people (and technologies) participate in the world. In contrast to Cartesian approaches that separate mind from body and thought from action, embodied interaction emphasises their duality" [3: loc 2304]. And a few sentences later, "Embodiment is about: engaged action rather than disembodied cognition; it is about the particular rather than the abstract, practice rather than theory, directness rather than disconnection" [*ibid*: loc 2304].

knowledge in the vernacular languages in rural Africa without intermediation, I sensed that there were no proper words in the English language to convey the multifaceted embodied meanings that are being expressed. Due to the lack of words, I adopted the naming of *the Big Five*, in an analogy of the naming of the five animals that are considered most rewarding to pursue in Africa: the African lion, African elephant, Cape buffalo, African leopard, and rhinoceros.

The Big Five are proposed as a foundation from which to piece together understanding from coexisting and mutually-interdependent experiences. They should be regarded as a way of constructing meaning, mainly from within the 'We Paradigm'. Therefore, *the Big Five*, does not provide for single, 'objective' description of reality. Instead, *the Big Five* allow for multiple interpretations at the site of human embodied interaction, while being in togetherness.

I have experienced that being sensitised to *the Big Five* can help in recognising and discussing the meaning in embodied interaction in Africa. Through *the Big Five*, I hope to facilitate conversations and inform the intersubjective interpretation of the (empirical) world in rural sub-Saharan African settings. Unfortunately, due to the limitations of writing (see Chapter 3) and my training in engineering, these virtue epistemologies are presented rather homogenously and homeostatically, while, in practice, their interpretive agency resides in human interaction and they are mediated in the continuity of realities and human experience.

I have also observed that the application of *the Big Five* can reveal voices with information otherwise not heard. These voices communicate about the 'appropriateness' of technology or to recognise indigenous interventions in rural Africa. Collaborative meaning making includes an assessment of 'goodness' in terms of how perspectives or reality aligns with community values. *The Big Five* provides a view on how subjective processes can turn into situated knowledge that allows interventions to be judged on how they accommodate the context. *The Big Five* resist the reconstitution of western cultural domination, in which meaning making is primarily cognitive, abstract and information based. Instead, *the Big Five* talk about *interactions* in the present world. Of course, these interactions are set in the lived environment, with real and present risks. *The Big Five* provide perspectives on how communities mediate these risks in the scripting of interactions. *The Big Five* reside in the continuously-changing lived realm, are dynamic and, therefore, resist formalisation. The sub-sections that follow elaborate on what the five pillars of *the Big Five*. In addition, the first three are explored individually in Chapters 14–16.

Ubuntu – Communal love

'Ubuntu' – the first of *the Big Five* – has been popping up throughout this work, as it is fundamental to virtuous behaviour in sub-Saharan Africa. Of course, much has been written on *ubuntu*, and much more will be written. Although I undoubtedly will not do justice to the extent of *ubuntu*, from the perspective of *the Big Five*, I will explore its embodied characteristics and try to describe its bearing in tangible practice.

Ubuntu is the crystallisation of African, fraternal philosophy and provides the framing from which an African understanding of moral meaning can be derived, in context. *Ubuntu* signifies the metaphysical recognition of 'good behaviour', grounded in virtues like, for instance, affirmation, compassion, and solidarity. *Ubuntu* provides guidance on how to balance rights and duties through embodied action in relationships. *Ubuntu* inspires Africans to look out for the interests of other human beings to ensure a communion-in-otherness, while constantly making sure that all community needs are being fulfilled. In the next chapter, I argue that *ubuntu* is tantamount to 'communal love'.

In the literature, the attributes of *ubuntu* are often depicted as a list of attributes or essentials that are envisioned as being part of this philosophy. This list includes, for instance, respect, helpfulness, sharing, community, caring, trust, and unselfishness (as narrated by President Nelson Mandela in [6]) or conviviality (as argued by Francis Nyamnjoh [7]), and much more. When reflecting on *ubuntu* (or *umunhu* in Zambia and *unhu* in Zimbabwe) with members of the community, there is no agreement on its materiality. Therefore, it is not its actionable attributes that define *ubuntu*, but the context[191]. It is the basis of the local epistemology, but defines what is morally permissible in human life and what is not. As with the concept of 'love', there will never be an end to the descriptions of it. *Ubuntu*, like love, is 'always becoming'.

Ubuntu acts like a moral and cultural compass, providing guidance in every encounter in sub-Saharan Africa. When sensitised to its existence and having acquired the embodied skills to interact accordingly, one can appreciate its enabling faculty in many everyday situations in sub-Saharan Africa. From an African perspective, *ubuntu* is *communal love*, sustained through embodied interaction by all humans, as a common moral calling and duty to 'be together'. The duty to adhere to *ubuntu* – in the ever-present 'here and now' – overrides other needs, especially those not congruent with *ubuntu*.

[191] The centre of Macha Works' activities in Macha is called the 'Ubuntu Campus'. The Ubuntu Campus physically embodies *ubuntu* in its communal facilities, such as for housing, transport, and utilities. It signifies a carefully positioned environment for the Macha community to sustain communal expressions, activities and other interactions, sustaining communal life (e.g., by facilitating communications, education, sports, health, and nutrition).

Oratio – Communicating embodied knowledge

'Oratio' is cognisant of the fact that oral communication is the prime vehicle of embodied conversation. Oratio provides the scaffolding for the primary use of oral means of knowledge creation and dissemination in embodied interactions. It assesses the whole context (time, place, position and demeanour of the speakers) of embodied communication, processes data through discussions, and presents its output in community deposits. In comparison textualisation is a deconstructing and decontextualizing form of communications (see Chapter 3). Oratio integrates human communication with human experience and interaction: it positions the narrative in the tangible and observable reality, with all of the extra information that this provides. By pulling the embodied communication into the environment, the strength and acceptability of the communication can be assessed by those present. This assessment focuses on how the communication meshes what is desired by the community. In oratio, knowledge is embodied *in people* and is continuously validated in conversations. These conversations require people to 'be together' and meet face-to-face. Only in real-time, face-to-face interactions can participants assess the truthfulness of the communication.

Relatio – Relational resource allocation

In 'relatio', resource allocation processes are an integral part of efforts to establish, grow and strengthen relationships. In this realm, discussions on the sharing of resources are informed by the potential for, and sustenance of, existing and new relationships in an economy of sharing. In relatio, there is an attitude of sufficiency, and even abundance. Relatio keeps track of social accounts and defines an economy in which relationships constitute the prime target and repository of value. Transactions guided in relatio aim to establish and sustain human relationships.

In relatio, humans value reciprocity, sharing and keeping balance intact. Through relatio the community sustains the need to hear everyone's voice and receive everyone's contribution. This is what make community members strong, especially in ensuring and safekeeping resources. The 'relatio-economy' is, from the outset, an 'economy of giving'[192]. Relatio frames the African grocery market, the value of millet in Uganda [9] and provides input on how rural areas continue to exist and flourish. It provides a lens through which to retrieve meanings in the vibrant and life-sustaining market of giving, yielding and sharing. Follow Kwame Nkrumah's reasoning that "capitalism is a development by refinement from feudalism, just as feudalism is a development by refinement from slavery" [10:72], it can be deduced that relatio is distinct as it put 'relationships' as the prime variable in (and reason for) economic transactions by keeping track of social accounts.

[192] Based on his experiences visiting Macha Works, Peter Weijland published the mathematical framework of this economy, based upon game theory [11].

In the economic realm, relatio facilitates the keeping of several balances for economic survival. The main ones are the available resources and the social balances between humans. In Africa, one keeps good track of one's social standing and manages one's needs accordingly. It is first and foremost one's social standing that provides certainty of sustenance. This schema is not romantic nor altruistic. It is construed in line with the local understanding of responsible and embodied behaviour. Therefore, an African rendering of economy – relatio – sustains all essential functions of an economy[193]. Each embodied action affects an unwritten account that is managed by the greater society.

In relatio, one makes deposits into a social account by showing good character and following the social norms and obligations, as per *ubuntu*, and by unquestionably releasing resources when they are needed. Displaying poor character, breaking taboos, and, to a lesser extent, requiring the resources of others represent withdrawals. Therefore, within relatio, the future is secured through obtaining social value and, therefore, maintaining connections with the community.

Dominatio – Maturity through forgiveness and covenants

'Dominatio' represents African values on how to deal maturely with (unsettling) events. It draws on the realisation that we continue together. It regards the past through the lens of forgiveness and forgetting and the future as embedded in covenants [cf.12] – or, in this context, oral promises between people that are valid during the life time of the promisor and the promisee. In my observation, covenants regulate behaviour in many parts of Africa. In dominatio, human interaction is understood to be embedded in an understanding that people, where ever they are, 'live together', intrinsically bound by 'humanness'. Dominatio provides the means for, and understanding of, how to deal maturely with the past (through forgiveness) and the future (through [oral] declarations and promises). In this dealing with the past and the future, the embodied practice of striving to 'being together' and 'taking care', within community, is grounded. Dominatio counters the practice of non-forgiveness, which can turn into bitterness and hatred, leading to destruction, with each community member striving to reconcile human experiences, using their position, abilities, and capacities [13].

[193] During a keynote speech in Livingstone, Zambia [11], in 2016, I explained these functions as they relate to financial security. Within *relatio*, one is secure in the informal, inferred system of relationship credit. Unwritten accounts are managed by the greater society. Showing good character represents a deposit, implying the following of social norms and obligations and the unquestionable releasing of resources when they are needed. Security is ensured by obtaining social value. The system is based on trust and, therefore, a relationship can be thought of as an equally-important form of capital. Wealth is, therefore, created socially.

In the realm of social justice, Africa appears to have been dealt the 'short straw'. And, still, the internalised experiences of domination throughout recent history are not something to glance over easily. Fortunately, dominatio provides an explanation for the maturity, vibrancy and resilience witnessed in sub-Saharan Africa. Forgiveness and human commitment are among the ingredients necessary to sustain current and future relationships. This forgiveness – which has provided an impressive basis for the new South Africa since 1994 [14] – counters social injustice. As shown in Chapter 9, the empirical evidence shows how Africans have been disadvantaged in terms of access to, and use of, resources. However, in the African environment, an understanding of dominatio ensures mature and healthy (or restored) social relations and establishes (sustainable) balances that allow people in communities to continue their lives, by ensuring a sense of security, acting with dignity in society, and ensuring harmony, which provides an equilibrium that the whole community feels comfortable with[194].

Animatio – The continuous present moment

The fifth pillar of *the Big Five*, 'animatio', incorporates an understanding of the embodied entering into the realm of connectedness with the material and immaterial world around us. Animatio[195] is the tuning in of activities to an African rhythm. In a 'continuous present moment', the world acts upon the community and its members, with humans beings able to decide where to position themselves. The complex networking of humans and non-humans affects what happens in the present. Constant careful positioning in the (continuous) present happens by 'tuning into' the rhythm of life. These rhythms sustain progress and provide the solidity of life, every day, recognising the strength to stand tall amid tidal waves of change and difficulties. Animatio enshrines the collective search for African guidance in situations of change and stress and provides the setting for the continuity of the African rhythm, the engagement with local culture, and the striving to sustain balance. It provides a sense of belonging and aids in attaining equilibrium, time and again. Animatio is the setting that honours family connections within one's community, the greater society, the continent, and humanity at large. It connects to the environment, defines and regulates ethical behaviour and measures and evaluates work.

[194] Dani Nabudere states that security, dignity, and harmony are the result of a restorative movement, and necessitate acceptance through apologies, atonement, reparation, restitutions and reconciliation [15:3].

[195] The word *animatio* was construed due to the lack of an applicable word in the English language. Also, I was not able to distinguish a word describing such a concept in the vernacular, as, I have not yet been able to find an all-encompassing expression on the content of *animatio* in vernacular languages, possibly because the pillars of *the Big Five* are self-evident truths in sub-Saharan Africa. Nevertheless, further conversation and interactions might result in the discernment of such a word.

In animatio, embodied knowledge is modulated by the seasons and the rhythm of life. It ensures respect for ongoing connectedness with the material and immaterial world, with humans and non-humans. Animatio embeds the drive to exercise one's (communal and individual) sense of belonging, aims to attain equilibrium and balances expressions of humaneness, also in music, poetry, dance, sports, and, of course, technology. In that sense, animatio resonates with Tim Ingold and Elizabeth Hallam's [16] understanding of creativity and culture. These authors argue that tradition involves improvising as "the challenge remains of accommodating a fixed plan to a fluid reality" [16:10]. They call upon the philosopher Henri Lefebvre, who shows that the essence of rhythm lies in the "movements and differences within repetition" [17:40]. This shows a recognition that life is rhythmic rather than metronomic.

Animatio ensures that human values such as love, solidarity and empathy fuel caring for the other, the environment, and the ecology. It ensures a solid basis for growth in ensuring that change abides by cultural roots, which are deep, aiming for fair play and the sustenance of courage. When understanding and affirming animatio, one is on the path to sustainability, as animatio provides an indication of what sustains progress and provides the solidity of the ever present moment of everyday life. Animatio enshrines the collective search for African guidance in situations of change and stress, by focussing on the strength of African rhythms and the tuning into local culture as the basis and sustenance of communal balance.

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Chapter 15

Reflections on Ubuntu as Communal Love in Sub-Saharan Africa[196]

Contents

[196] This chapter is based on a book chapter called 'Ubuntu/Unhu as Communal Love: Critical Reflections on the Sociology of Ubuntu and Communal Life in Sub-Saharan Africa' co-authored with Munyaradzi Mawere, published in 2016 in M. Mawere & N. Marongwe (eds), *Violence, Politics and Conflict Management in Africa: Envisioning Transformation, Peace and Unity in the Twenty-First Century* [1]. This work is based on original research conducted by me, on which I reflected with my co-author. For the purpose of maintaining the flow and consistency with other chapters, 'we' has been changed to 'I' throughout when referring the authors.

Introduction

Africa, especially the rural parts of sub-Saharan Africa, is richly endowed with *ubuntu* [2, 3]. However, determining what *ubuntu* means with precision is difficult. Although it has become topical, the meaning of this term is still elusive. It vigorously resists any attempts to describe it, especially when using the hegemonic development discourse prevailing in the sub-Saharan region. Also, as with all definitions, the meaning of *ubuntu* is context dependent. Its shadings depend on the geographical, historical, linguistic and other components that make up the fabric of society. Further, one's interpretation of *ubuntu* – whether as a moral quality or a phenomenon – depends on one's perception of the nature of personhood [4, 5]. These differences in cognition influence the interaction of *ubuntu* in particular circumstances, both in time and place. As I previously proposed [5:38], "without Ubuntu there is no peace in Africa".

In this chapter, I push this argument further noting that in the absence of *ubuntu* in Africa, there would be conflict. As such, I look at the constitution of *ubuntu* and how it contributes to peace and unity of purpose. I seek to designate concepts in *ubuntu* that are of a transcendental or metaphysical nature, without downplaying its epistemological underpinnings. As sub-Saharan cultures are grounded in *ubuntu*, I would like to further its understanding and appreciation in relation to culture and civilisation, explicitly grounding *ubuntu* in religion, language, tradition and society.

In an effort to identify approaches that work when engaging in research in African communities and to promote African agency for transformation, this chapter explores the pathways that emerge from a contextual understanding of the African philosophy of *ubuntu*. Sensitised by the biblical adage that love "always protects, always trusts, always hopes [and] always perseveres" (1 Corinthians 13:7*),* I explore the uniformity of *ubuntu* and love in an effort to pinpoint an embedded mechanism that could support transformation, peace and unity in Africa. This chapter emerges from my long-term, *in situ* transdisciplinary, reflective ethnographic research and life experiences in sub-Saharan Africa and further afield, augmented by a review of the relevant literature. In this endeavour, I advance the argument that *ubuntu* can be understood as a metaphor for 'communal love'. This understanding provides a strong and contextually-sound basis for *ubuntu* as guiding culturally-attuned tool for community engagement, workforce development and thought leadership.

Seeking Contextual Knowledge

The context matters in relation to whatever takes place within its ambit. Therefore, *ubuntu*, like its manifestations, must be studied where it occurs. Relevant research must

use contextually-appropriate methodologies and epistemologies, embedded in compatible worldviews and philosophies, cognisant of local rights and dignity [6]. African cultures, although diverse and ever-evolving, harbour cultural conceptions expressed in symbolic forms that facilitate communication and provide the local basis from which to develop and perpetuate useful knowledge. Such embedded (and embodied) knowledge customarily includes metaphysical aspects of African cultures. In this chapter, I investigate, from a multi-disciplinary perspective, the African values of (social) cohesion and unity, integrating contributions from any source of knowledge, including from religion [7].

The realisation of the potency of (ever-changing) groupings of people and the objective and subjective embodiments of their philosophies prompted Huntington, consciously or otherwise, to rethink civilisation in view of world cultures. In his seminal work, *Clash of Civilisations* [8], Huntington predicted that the global fault lines (where most violence and conflict would take place) would not be defined by the labels 'developed' or 'developing nations,' but would be determined by the differences between cultures in societies. In his view, these cultural differences will be interpreted and defined based on long-term enshrined society patterns, as defined by religion, language, cultural values, and traditions [*ibid*.]. When looking around, I reflect that some of the answers to the problems of the world are here, for grabs, right at an African doorstep:

- the value of relationships;
- the value of sustainable progress that benefits all;
- the value of lessons learned through history ;
- the value of not giving up and persisting in face of whatever adversity; and
- the value of sheer enjoyment of life.

What Ubuntu Is, and Is Not

As has already been alluded to, describing *ubuntu* with precision is a delicate task. While *ubuntu* has been fundamentally important to African thoughts for a long time, only a relatively small number of scholars – often from outside the continent – have significantly contributed to its theorisation and practical deployment in real life, usually to inspire societal stability. What is most recorded about *ubuntu* from African soil are descriptions – particularly in the form of narratives – rather than precise definitions of the term. From this ambiguous position, I deduce that the study of the attributes of *ubuntu* is inadequate to provide a comprehensive definition of the concept, or to describe the transcendent character of *ubuntu*. While most scholars agree that the outcomes of *ubuntu* are

moralistic in nature – characterising situations and attitudes associated with good and bad behaviour – there is neither broad consensus on the boundaries of its definition nor on its reach and application. Nevertheless, it is clear that *ubuntu* is associated with a whole range of positive attitudes including love, respect for human life, passion for community, helpfulness, conviviality, sharing, caring, trust and unselfishness. *Ubuntu* appears to boil down to notions that prescribe how one engages in the 'right manner' in connection with other people.

Throughout sub-Saharan Africa, *ubuntu* is grounded in culture and indigenous epistemology. As Mawere and Mubaya [3] rightly capture in their '*African Philosophy and Thought Systems: A Search for a Culture and Philosophy of Belonging'*, although *ubuntu*'s nomenclature can vary (*ubuntu* in Nguni languages, *umunthu* in Chichewa, *botho* in Tswana, *vumunhu* in Changani, *utu* in Swahili, and *unhu/hunhu* in Shona), its conceptual representation is relatively uniform; an inclusive and constructive comprehension of the environment and oneself emerging from the joy, wisdom and knowledge of the community. Each image of *ubuntu* is considered a self-explanatory part of an African paradigm, as depicted in Bantu languages, where it designates the moral values of a person. It is, thus, derived from the Bantu words: *munhu* (among the Shona and Ndau of Zimbabwe and Mozambique respective), *muthu* (among the Batswana of Botswana), *omundu* (among the Herero of Namibia), and *umuntu* (among the Ndebele of Zimbabwe and the Zulu/Xhosa of South Africa), among other Bantu linguistic groupings. Drawing its basis on moral virtues, *ubuntu* remains the standard measure of moral excellence among the Bantu groupings in sub-Saharan Africa. This standard is taught through the generations and perpetuated by 'being together' in continuous face-to-face encounters and holistic interactions with others [9]: it is a standard that rallies around the moral virtue of love, but is powered by the virtues of respect and recognition of mutual co-existence.

The interminable aspects of *ubuntu* were alluded to by Nelson Mandela. In his response to being asked to describe *ubuntu*, Mandela told a story:

> *A traveller through a country would stop at a village, and he didn't have to ask for food or for water. Once he stops, the people give him food, entertain him. That is one aspect of Ubuntu, but it will have various aspects*. [10:369]

This boundless expanse of communal virtues might be a major reason why there is so much variety in the descriptions of *ubuntu*. Several authors from across disciplines have proffered their contributions. Nyamnjoh [2, 11] writes about *ubuntu's* tantalising stricture of 'ever-becoming', but emphasises one of the important aspects of *ubuntu*, 'conviviality'. He expands on how *ubuntu* mediates the complex interplay between individual freedom

and social obligation through conviviality and interdependence, giving real life examples of the interaction of *ubuntu* with global inequality, marginalisation and disconnection. On a similar note, and with extensive references to the literature, Mawere and Mubaya [3] describe how *ubuntu* harbours an array of logical, ethical, epistemological and metaphysical value-laden manifestations. They highlight how *ubuntu* provides a well-established and highly-advanced moral compass to guide human behaviour, with direct applications for business, religion, politics, law, education and management, among other spheres of life.

Ubuntu is rooted in universalism; its boundaries are elastic and permeable, allowing it to be pragmatic and applicable in various spheres of life. Although its precise definition remains elusive, it is relatively clear what *ubuntu* is not: it is not anti-social, individualistic, egocentric, uncaring, selfish, violent or divisive. What constitutes *ubuntu* is unlimited. Here I contrast African cultural manifestations of *ubuntu* with some contemporary Western cultural manifestations, as described by the Dutch theologian Gert-Jan Roest [12]. Roest describes a Western environment as having entered the 'Age of Authenticity'. He recognises Western practise as having a self-consciousness that regards the individual (and, therefore, individualism) as the primary agent interacting within communities, like billiard balls bouncing off each other. Further, in the Western context, Roest perceives the pursuits of the individual to be captivated by striving for human power and agency, freedom and fulfilment in self-sufficiency, self-reliance, autonomy, through self-cultivation, and immanent prosperity and security.

Ubuntu does not sustain such an individualistic outlook or support the Western cravings described by Roest. It emphasises the importance of a group or community. It regards a person (and personhood) in relation to others, including the ancestors who were and the children who will be. *Ubuntu*, thus, tries to harmonise the past with the present and the future. In other words, *ubuntu* inspires the need to respect all dimensions of human life, ranging from the physical to the spiritual, living/dead and the yet-to-be born [cf. 13]. This cosmological and metaphysical understanding of *ubuntu* connotes that one becomes a full human being or person through other persons, not on the basis of one's self. Archbishop Desmond Tutu [14] captures this aptly when he uses the Xhosa proverb, '*ungamntu ngabanye abantu'* (Shona: '*munhu nevamwe vanhu'*), which means a person is made a person by other persons. This interpretation of *ubuntu* resonates with that given by Onyebuchi Eze who notes:

> *More critical* […] *is the understanding of a person as located in a community where being a person is to be in a dialogical relationship in this community. A person's humanity is dependent on the appreciation, preservation and affirmation of other person's humanity. To be a person is to recognize therefore*

> *that my subjectivity is in part constituted by other persons with whom I share the social world.* [15:107]

Thus, although *ubuntu* considers human beings as most important, it explicitly links the empirical world and the cosmos. Further, it does not bifurcate between the community and the individual. Nor does *ubuntu* regard a community in individualistic or collectivistic terms; it indicates a state of being, linking the community and individuals relationally in an ecological whole with fullness and sufficiency. Its overall bearing is to guard the honour and dignity of the community, with community members (and those called for leadership) serving a common purpose. For the Shona people of Zimbabwe, this purpose of life is to love unconditionally [16].

Further, *ubuntu* does not subscribe to a dualistic rationality or a competitive or destructive view of the world [17]. It neither induces self-love, nor does it drive people to seek expressions that create individual names or seek personal glory, for instance, by being labelled as 'impressive', 'famous' or 'spectacular'. In such acts of separation from the communal, *ubuntu* questions the wholeness of the person involved. Similarly, *ubuntu* considers acts of violence and conflict – anything that separates people – as being inhumane [5]. Moreover, *ubuntu* does not fuel a search for self-sufficiency. Being in need provides a space for others to contribute and participate. In this manner, hospitality becomes a reciprocal endeavour and a vehicle for building balanced relationships.

Ubuntu is not linked with the hatred of other people and other beings; it is not conducive to violence of any form, whether xenophobic, political, or gender-based; it does not inspire hate language; it provides no ground for Afrophobia; it does not inform racism; it gives no roots to tribalism or ethnocentrism; it does not sow the seed of division; it decries domination; it condemns hooliganism; it is divorced from cruelty; it is uncoupled from treachery; it provides no room for double standards; it denounces the love of riches at the expense of others; it discredits success through the sweat of others; and it does not love war or the suffering of others. From the literature, observation, and experience, it emerges that *ubuntu* signifies a notion that guides one to exercise the 'right behaviour' when in or outside the company of other people. *Ubuntu* encapsulates a communal aspect that allows and encourages people to do 'good' to other beings. In the ensuing sections, I will attempt to explain the communal aspects of *ubuntu*.

Love beyond Self and Individualism

Archbishop Desmond Tutu [14] summed up the African focus on relationships with the premise that 'being together' is the ultimate goal of our existence, as depicted in his deployment of the Xhosa proverb: '*ungamntu ngabanye abantu*'. This understanding is

aligned with the Christian Biblical Jesus Christ, who said "Abide in me, and I in you" (John 15:4). Being together is, in practice, an abiding in love and togetherness. *Ubuntu* berates individualism: it is love beyond the individual. But what is such love?

Love is a buzz word with an array of meanings and interpretations. As this text uses the English language, it is relevant to ask what the word 'love' means in English. As with all words, the word 'love' derives its meaning from the culture that moulds the word continuously. And that moulding centres on Anglo-Saxon contexts in countries like England where the language originated and resides. Subsequently, the English word 'love' is embedded in linguistics and culture bound to individualism and an individualistic worldview [18]. As Roest [12], Olivier [19], and many others have shown, the consecutive self-gratifying understanding of love has become a potent source of the destruction of human community.

In our modern Western society, love is attributed an almost mystical agency experienced in sexual pleasure. Love is, thus, intrinsically linked to the Greek word '*eros*'. Bert Olivier [19] argues that this strong connection between love and *eros* aligns with a *raison d'etre* that strives for a unifying self-love. Contemporary music, which mines the word love in all its forms, often explicitly links this tie of love with *eros*.

In individualistic environments, a self-centred concept of love is introduced early, as in the children's rhyme: 'I love you, you love me, we are a happy family'. Here love is initiated by 'I' and 'you' as individual entities that subsequently link through 'love'. However, such a self-enunciating view of love is not prevalent in Africa. In the most African settings, love is better understood as a communal expression, where it is a social-self – the 'we' – that sustains life, life with a purpose.

The Greek word '*agape*' is one among several Hebrew and Greek words in the Bible that are translated into the English word 'love'. *Agape* seems most close to an African understanding of love as the central nerve of *ubuntu* on which all relationships are anchored. Perhaps such knowledge led John Mbiti [20:142] to write: "The Bible is very much an African book, in which African Christians and theologians see themselves and their people reflected and in which they find a personal place of dignity and acceptance before God".

When taking the English word 'love' into most African environments, it does not fit with the contextual understanding of love. The English word 'love' does not readily transmit the concept of communal love. This void is aptly filled by the word *ubuntu*. In the next section, I try to bring the discussion to a different level, by linking *ubuntu* to the concept of love, above all other good attributes of humanity. This linking of *ubuntu* and love is

opportune, as, like *ubuntu*, love resists a (conclusive) description. Love functions as never-ending fuel for human exploration, innovation, and creativity through expressions of art, words and virtuous actions.

Ubuntu as Communal Love

Thaddeus Metz [21, 22] concurs with Archbishop Tutu [13] and Ramose [14] and Samkange and Samkange [23] when he acknowledges the centrality of community in *ubuntu* and equates this concept with the idea of humanness and to the maxim: 'a person is a person through other persons'. This is also explicit in Metz's [22] allusion to the connection between *ubuntu* and love:

> *The union of sharing a way of life and caring about others' quality of life is basically what English speakers mean by a broad sense of friendship or even love. Hence, one major strand of traditional African culture places friendly (loving) relationships at the heart of how one ought to live.* [22: 269]

What Mertz argues reverberates with Munyaradzi Mawere's [16] earlier contention in his paper *On Pursuit of the Purpose of Life*: *The Shona Metaphysical Perspective*, in which he establishes love as the purpose of life and human existence on Earth. Mawere arrives at this conclusion through his theorisation of love, which he argues always provides a [positive] service to the community. On this note, Mawere reasons that all human activities executed to promote happiness in society, such as sharing, feeding, caring, giving and receiving, are hinged on love, for none can involve himself/herself in such without embracing love. Using a case study of the Shona people of Mozambique and Zimbabwe, Mawere, thus, advances that love is the major purpose for the existence of human life on Earth, which the Shona people traditionally acknowledge, strive to achieve, and foster in their relationships with one another and the environment they share.

Nelson Mandela's life emanated an embodied, loving behaviour inspired by *ubuntu*. Researching Mandela's life and *ubuntu*, Claire Oppenheim [10] distils how, in *ubuntu*, communal activities depend on direct, face-to-face, positive interactions with community members. She recognises reciprocity in *ubuntu*, through which the "humanity of every person is necessarily entwined with the Ubuntu of his or her community" [10: 371]. One, thus, seeks to play an active, direct and positive part in the whole. An example of the translation of *ubuntu* into communal love comes to the fore when Oppenheim outlines how the imprisoned African National Congress leadership, as a group, sought to befriend the warders at Robben Island [10: 382]. Although it can be argued that the seeking of harmonised relationships was done to draw some favours from the warders, it can also be argued that, from an African view point, such seeking, against all odds, in an oppressive

regime that institutionalised separation (like banning) as a tool of control, was an expression of *ubuntu*. In general, the story of Mandela's life, which was embedded in *ubuntu* from cradle to grave, is a poignant example of the saying: 'Love conquers all'. It is a story that without understanding the primacy of love in human relationships one can hardly understand.

Another example of communal love is expressed in the Igbo proverb: 'It takes a village to raise a child' (in Shona '*Mwana haazi wemunhu mumwe*'), which has many equivalences in other African societies. In many African settings, all adults are considered empowered and responsible for guiding children in the community. This interaction takes shape in both the rewarding of constructive behaviour and the admonishment of undesired behaviour. This involves active interaction with children, whether they are part of one's family or not. This interaction demands a deliberate and ongoing effort to gain communal knowledge of the desired behaviour of children, by all.

As communal love is all encompassing, it not only addresses leadership and family life situations, as in the example above, but also guides exploits to secure livelihoods and the allocation of resources [24]. For instance, in many African societies, all members are responsible for the security of the farms worked on by families. Each community member participates in a collective or individual capacity to ensure that there are no stray animals or uninvited strangers entering agricultural areas who could affect the livelihood of community members. Another example is the communal work parties (*nhimbe*/*humwe* in Shona), which seek to lessen individual labour burdens by sharing the work.

These examples show the generous hospitality displayed. The sharing of any available resources, as alluded to in the aforementioned quote by Nelson Mandela, is commonly experienced by travellers in Africa. The active inclusion of visitors in the activities they happen to stumble into, even to the extent of accepting foreigners to share in Africa's riches [2], is a remarkable example of communal love. From these examples, this evidence, more references can be found to obtain a better understanding of what communal love entails. With the English word 'love' being privatised to refer to individuals, how can more solidity be gathered on how 'communal love' exists and functions?

Undoubtedly, the understanding of transcendence, both in Africa and Europe, is heavily influenced by the Abrahamic religions of Judaism, Christianity and Islam. Here I review the nature of 'love' in the context of one of them: Christianity. The Bible states "God is love" (1 John 4:8). In the context of the assertion of communal love, we remind ourselves that in the New Testament, Christianity regards God as a community, being three persons in one: the Father, Son, and Holy Spirit (Matthew 28:19; 2 Corinthians 13:14). In this

sense, God can be regarded as a community of love, in which three persons love each other and emanate love.

While deeply rooted in many African cosmologies, the emanation of communal love is directed to another community: the Church, 'the community of believers', a common presence in African communities. At this level, one can see the existence of communal love in an emanating communal entity (God) and a receiving communal entity (the Church). Even the summary of the Gospel, "that God loved the world so much that he gave his only begotten Son" (John 3:16) can be seen as a statement of communal love for the whole world. This [overriding] aspect of God and love is grossly overlooked in contemporary individual framings of the Gospel, where God's redemptive love is translated as aim towards an individual person [12]. In the light of this communal love, even the Biblical Jesus Christ's actions can be seen as principally communal as He asserts in one of the texts: "Very truly I tell you, the Son can do nothing by himself; he can do only what he sees his Father doing" (John 5:19). This statement shows the centrality of community, which in turn hinges on love. The applicability of *ubuntu* in contexts such as religion, among others, shows its agility, fluidity and pragmatic underpinnings.

Within communal love, freedom of (individual) humans is not arbitrary, as all freedoms are rooted in love. Or, as Nyamnjoh [2:15] states: "Ubuntu challenges us to recognise co-existence, intermingling and interdependence as a permanent work in progress that should not be abandoned in a hurry or by claiming freedom in abstraction". The mechanism to do so, I argue, is grounded in communal love.

When one looks to the famous love passage in the Bible and translates the word love, it reveals a remarkable similarity with *ubuntu*, which resonates well with most writings on *ubuntu* as captured in the following, in which the word love is replace by *ubuntu*:

> [*Ubuntu*] *endures with patience and serenity,* [*ubuntu*] *is kind and thoughtful, and is not jealous or envious; [ubuntu] does not brag and is not proud or arrogant. [Ubuntu] is not rude;* [*ubuntu*] *is not self-seeking,* [*ubuntu*] *is not provoked [nor overly sensitive and easily angered];* [*ubuntu*] *does not take into account a wrong endured.* [*Ubuntu*] *does not rejoice at injustice, but rejoices with the truth [when right and truth prevail].* [*Ubuntu*] *bears all things [regardless of what comes], believes all things [looking for the best in each one], hopes all things [remaining steadfast during difficult times], endures all things [without weakening].* [*Ubuntu*] *never fails [it never fades nor ends].* (1 Corinthians 13:4–8a, AMP)

African Agency for Transformation through Ubuntu

With regards to an African agency for transformation, an understanding of *ubuntu* and its representation of communal love is hampered by the hegemonic (and foreign) cultural view of human agency emanating from the West. Pervasive non-relational ontologies link into particular (Western-situated) views on rationality, time, freedom and community. These foreign ontologies are unhelpful to gain a comprehensive appreciation of the transcendental nature of *ubuntu* and an African cultural agency embodying communal love. Subsequently, colonial behaviour can give rise to an anti-Western polemic. However, continued imperialistic aspirations impact on the setting of standards for education, the definition of (free) markets, and the idolisation of an instrumental rationality. Therefore, there is a critical need to continue to engage with foreign views and practices in an effort to assess their congruence with *ubuntu*. Of course, this does not negate the need to resist and unmask imperialistic and orientalist orientations through the exposure of the colonial legacy in contemporary systems and of anthropological poverty due to a lack of cultural sensitivity. Peace-building efforts based on external dominance will not hold in many African settings.

Africa's cultural roots, embedded in *ubuntu*, remain under siege. In an uninterrupted period since the start of slavery about 500 years ago, foreign powers have subdued African agency and plundered Africa [2, 25] (see also Chapter 9). Contemporary political, social, and economic changes on a global scale, including a single globalisation narrative and an information and communication technology hegemony, continue to assault and affect Africa. Globalisation results in 'context' becoming a fluid term. However, due to persistent underrepresentation and limited African mobility and inclusion, most, if not all, foreign influences negate (and, subsequently, destroy) *ubuntu*. Such imposed frameworks are in direct opposition to *ubuntu* and its communal expression of love. However, experiences from other cultures under long-term siege (for example, Judaism) have shown that cultures can be resilient. As *ubuntu* seems well suited to provide a metaphysical grip in times of hardship, there is much room for trust in the continuity of its philosophy.

The recognition of *ubuntu* as encompassing communal love is instrumental in the desire to recognise effective means already available in contemporary Africa that can be used to guide engagement and research in African contexts. The ethics of *ubuntu*, therefore, are not grounded in the needs of the individual or human society as a whole, but in a communal love aimed at taking away shame and guilt. In the Christian faith, the reconciling act of Jesus Christ can be considered an act of communal love catering for mega cosmic harmony. One could regard *ubuntu* and the communal love it encapsulates

as a seed that yields fruit: being together in community where everyone is expected to live at peace with all others, including "other beings" [26]. Thus, *ubuntu* is the bedrock of *the Big Five* framework.

Conclusion

The term *ubuntu* is a rich and broad concept, the crystallisation of influential African philosophies and values. The presence of *ubuntu* means the presence of communal love. The practice of communal love is alive in sub-Saharan Africa and, upon sensitisation, can be recognised as a theme in the discourse on *ubuntu*.

In this chapter I argue that any work or engagement in sub-Saharan Africa, including research, that aim for transformation, needs the ingredient of wholesome love. Such love must encapsulate all and sundry, all affected humans and environments. Due to its grounding in communal love, I propose that *ubuntu* is an apt and existing philosophy and means of engagement. Rereading the extended knowledge base on African cultural behaviours through the lens of '*ubuntu* = communal love' can provide new and exciting avenues for the development and activation of specific, contextually-adapt, interventions. Only contextually-sound efforts embedded in the local culture can provide for sustainable progress while sustaining long-term stability and sufficiency in Africa.

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Chapter 16

Oratio: Communicating Embodied Knowledge

Contents

Our vision of the world is a vision from somewhere – that it is inextricably based in an embodied, and therefore partial, perspective – which makes us personally responsible for it.

Lucy Suchman [1:96]

Introduction

The previous chapter looked at what *ubuntu* is and its link to communal love. Like *ubuntu,* the African practices of, and need for, *embodied knowledge* are a thread running throughout this deposit of my work. In this chapter, I emphasise this aspect in explaining the bearing and efficacy of the concept I call '*oratio*' – or communicating embodied knowledge – when engaging with rural communities in Africa.

Throughout this whole document, I elaborate on the tension between writing and speaking (see particularly Chapter 3).[197] In this chapter I present the perspective of *oratio*. I have created the word '*oratio'* to represent the communication of embodied knowledge[198], as I have experienced it in rural Africa. *Oratio* captures the dynamism of embodied knowledge at the crossroads and junctions of encounters. It reflects the physicality of communication, which encompasses aspects of the context, including the people present. This physicality sustains community life embedded in *ubuntu*. By coining this term, I hope to contribute to opening up a view on what I argue is "a domain of human experience to the imagination that is [at] once subjective and objective, carnal and conscious, observal [sic] and legible" [3:11].

[197] *Oratio* explains why there is a contest between oral culture and the (demand for) written representations. This is especially true in the sciences, where the emphasis is on the written word. "In the case of sub-Saharan perspectives on value, it is a largely oral tradition that, only in the post-war era, has been discussed in written form by academics, or at least by those who are sympathetic and informed. European colonialists ignored and even denigrated African cultures for hundreds of years, and it has been only in the last 50 or so years that Africans themselves have had the substantial opportunities to write about their own traditional societies. Their writings form the core sources for what are presented here as African norms, supplemented by one of the very few self-reporting studies from people below the Sahara. The relative novelty of the academic study of Ubuntu, combined with the fact that there are at least several hundred different indigenous peoples and languages below the Sahara, makes it reasonable to focus on those values that have been recurrently mentioned by contemporary literate interpreters there" [2:50].

[198] As with *the Big Five*, I wish to reiterate that *oratio* is not meant to reduce life to a description of social structure, nor do I wish to position it as part of a cultural construction to be appropriated by culturism. Although *oratio* seems to be an abstraction, here I propose the term only to indicate a point of view, from which certain behaviour in the practice of *interactions* in African environments can be perceived.

As I explained in Chapter 3, in rural communities in sub-Saharan African, information is more – and foremost – relational.[199] In such communities, information does not necessarily focus on abstract, decontextualized and deconstructed *items*[200] that are being combined. *Oratio* is an integral part of '*the Big Five*'. In this chapter, I explain *oratio* as signifying *the communication of embodied knowledge.*

The Interconnectivity of Knowledge

In *oratio* knowledge is embedded in the *whole*, in an embodied manner. In many African philosophies, people in the lived realm regard *the whole* as constitutive of reality. Embodiment, of course, involves the presence of people.[201] However, as Paul Dourish notes, embodiment does not necessarily focus on natural properties (of people, systems, technologies, or artefacts), but concentrates on human interactions, on how people (and their intentions amplifying technologies) contribute and engage in the wider context, in action in the lived world [6].[202] In line with a phenomenological, dynamic understanding, in Africa, any *part* is considered to be a derivative of the *whole*. Although parts can have an attributed agency, the whole carries the *values* that mediate the culture. It is with this *whole* that *the Big Five* engages. Although partial revelations are possible, disembodied and abstract cognition, disconnected notions of reality (for example, in models), anything that filters *the whole,* is of lesser value[203]. In *oratio*, knowledge is embodied and its

[199] The ultimate test of the relationality of information might be its transactional, economic value. In my paper on *Oral Budgeting in Rural Macha* [4], I describe how financial budgets are, indeed, set (only) by aggregated experience, derived from people in history and space.

[200] I use the word *deconstruction* to depict a practice of reducing realities in (supposedly) constituent parts by dissecting, dismantling – effectively reducing – realities, in which the world is seen to exist as an amalgamation of constituting natural and human factors (for example, like the 1st paradigmatic view in human computer interaction [5]).

[201] From the nature of *ubuntu*, it follows that humans and their bodies are not to be seen as natural, passive building blocks. Humans are hybrid entities, not a bundle of biomechanical components. Individual humanity is not bound by the contours of the skin.

[202] If one acknowledges that non-verbal communication is part of communication, it is not a big step to envision the listener as part of the communication too. (S)he is not 'just listening', but is part of the communication. This is equivalent to the thought experiment contemplating the question 'If a tree falls in a forest and no one is around to hear it fall, does it make a sound?' If one interprets sound as an 'information transfer', the answer would be 'no', because, in that perspective, sound exists only when both the sender and receiver are involved.

[203] Here, I regard 'whole' as encompassing all possible interactions set in the present time and space, while being sensitive to the understanding that these interactions are carried forward from all known inputs from previous times and spaces. For instance, when I asked questions about which technology is recognised as 'African', an interlocutor in a rural sub-Saharan place, in 2016, answered: "it depends on if one can tell which African ancestor was involved in its appearance, and if we know that ancestor". This statement implies that, in this case, when no African was involved in the constituting of a technology it is labelled as 'foreign'. Foreign technology is,

content – and, therefore, the potency of the information – depends on the time and place. And for each time and place, there are different 'rules' on how to engage with information, set in the local culture. Those rules depend on all aspects of the context and can involve (but are not limited to) who disseminates the knowledge, who is present when the knowledge is disseminated, what authorities are involved, and what oratory tools are used by both the transmitter and receiver. All of these aspects are relational, dialectical and constituting and, therefore, intrinsically part of the information and its transfer, at that time and place.

In distinct contrast to intuitive knowledge[204], embodied knowledge is understood as being both intersubjective and ascribed to experiences[205] and carriers. The carriers of knowledge are people who are recognised in the community and authorised by its leaders to handle the knowledge. Carriers of knowledge are foremost human beings[206] and, therefore, in *oratio*, knowledge is recognised when it is intrinsically linked to a human being. As a community-empowered representative, in their *ubuntu*-guided behaviour, carriers of knowledge are responsible for the continuous validation of such (embodied) knowledge.[207] All this leads to the understanding that *oratio* is closely linked to subjectivity, passion, authority, roles in the community, and how interactions can be performed to communicate (and embody) knowledge.[208] These aspects are part and

subsequently, linked to the particular activities of foreigners in (a super-colonially affected) Africa (see Part II of this work).

[204] From their literature review, Janine Swaak and T de Jong [7:286-287] deduce that intuitive knowledge encompasses: (1) results from direct, experiential involvement, (2) difficult to verbalise knowledge, (3) perceptions on the symbolic level, (4) inclusion of expectation-generated anticipatory elements, and (5) interactions in parts of human memory, possibly removed from the parts aiding verbalisation. Thus, intuitive knowledge resides necessarily in an individual, not in a community.

[205] I understand 'experience' to be the subjective reading of events. For instance, the totality of this document, proposed as a contribution to the body of *knowledge*, is subjective, my reading of experience (in the empirical world). Experience can, therefore, problematise any *fact* and, subsequently, necessitate a constant redefining of meanings derived in the lived world. The understanding of reality and the deriving of meaning, therefore, is a result of social interaction and practice, and translates into deposits moulding the local culture.

[206] Munyaradzi Mawere [8], among other anthropologists, has argued for the significant presence of non-human beings. The manner in which these non-human actors interact to augment the knowledge creation in the present is (yet) beyond my abilities to study, for example, because of language barriers. Needless to say, the interaction between both human and non-human actors in *relatio* offers much room for research, possibly helped by an actor-network analysis sensitive to *the Big Five* perspectives.

[207] Therefore, academic knowledge, which is solely institutionalised and transmitted in non-embodied writings, published in foreign journals, and set in foreign languages, is not readily recognised as actionable knowledge in Africa. Without its embodiment in the (local) community(-of-practice) such academic knowledge is void.

[208] In 2016, an interlocutor active in Zimbabwean video productions explained to me that interactions on embodied knowledge are subject to: (1) having *passion* for the subject being

parcel of the backdrop against which knowledge is created, discussed, and disseminated, *in situ*.

In the same way, language (the vehicle for the transfer of information) includes content from the context, especially from the person speaking. However, information is contained in the whole *performance of conversation*, which includes verbal and non-verbal communication, in which every gesture and every circumstance is part of the communication. In that sense, communicating in *oratio* has the potential to convey much more information than text: the whole context, including its history and cultural expressions, linking in with time and space. *Oratio* particularly reviews 'who is present' and assesses carefully who articulates what information, in which language, in which context, and in what manner. In short, *oratio* scrutinises what *consciousnesses* are being expressed.

The *embodiment* of the information communicated in *oratio* allows the information to reside in the people present; therefore, knowledge is always *becoming* and impossible to ascertain or limit. Information emerges when called for, both in natural and cultural processes and circumstances. Therefore, the presence of knowledge is related to where the interactors – the humans carrying the knowledge – exist in time and place. Knowledge is, thus, interconnected, set in everyday life, full of mundane and scripted behaviour, in 'normal' and observable practice.

The perspective of *oratio* recognises that information is embedded in human thought and, thereby, incorporates rationality, reflexivity and relationality. To turn information into knowledge necessitates the involvement of all senses and of all community members present and incorporates all inputs related to the external environment (for instance, the seating arrangements) and to the internal state of a person (for instance, their demeanour and the strength of their relationships). When assessing in an *oratio*-sensitised manner, there is specific regard for the dynamic *flow* of information and interactions from the outside (for instance, by letter) and from the inside (the assessment of one's ability to do something, or the assessment of 'the other'). For example, I learnt that to gain the fullest picture, and prevent misinterpretation, of the content of encounters, *oratio* demands sensitivity to the personal history – including family relationships – of each person present. Further, I learnt that it is crucial to understand all people's engagement with relevant authorities so as to understand the sequence and manner of communications.

discussed, and (2) *living in* the community in which the discussions are taking place. Further, she indicated two distinct interactors: (1) those who are 'appointed' to deal with the subject (for example, by a government ministry), and (2) those who are *passionate* about it.

Interacting in Oratio

In *oratio*, the certainty of knowledge can only be ascertained when its inherent relationalities are witnessed in engaged action. For example, in group encounters in rural Africa, I have observed that when each individual person present has said something appreciative about a certain topic, the knowledge is then considered to be current. However, if one participant does not speak or the content of one or more oral contribution(s) is equivocal, the certainty of knowledge is not realised. Therefore, *oratio* links in with the notion of relational ontology [9–11]. These engaged actions are, necessarily, the actions of the people *present*. Helen Verran sees this in a predicating-designation – in which a linguistic declaration involves spatiotemporal particulars – which can be experienced (not judged) and, therefore, tacitly *learnt* or explored by participation, taking the whole into account [12:182]. She invokes O'Shaughnessy's [13] concept of proprioception (perception governed by information about position and movement) as a sort of fifth sense. Assessing the contributions by feminism to social theories, Joan Wallach Scott concurs that "experience is at once always already an interpretation and something that needs to be interpreted" [14:213].

In *oratio*, there are three typical *interactions*: (1) with the *ongoing motion of life*, encapsulated by a high degree of certainty of the constants that need to be considered (for example, the rising and setting of the sun each day), (2) with realities as set in a cosmologic understanding of realities (for example, with non-human entities, such as spiritual forces), and 3) with any type of *human movement* through space and time. These are the encounters in which knowledge is enacted. The latter might be seen as more connected with acts of *will*[209], although even this notion is contentious in view of the communal-self. In any case, *oratio* facilitates the recognition of, and interaction with, multiple perspectives.

As *oratio* emphasises the collective formation of knowledge, it encompasses any interaction and attitude towards what is communicated in the social, political, discursive, and narrative realms. As all these are mutable when viewed from various paradigms

[209] Michael Foucault was particularly concerned with the relationship between political power and the body [15]. He describes various historical ways of training the body to make it socially productive. In this view, the body is an element to be managed in the economic and social management of populations. He seems to recognise the existence of oratio in what he calls 'biopower' [15], a concept he diligently worked on, but never finalised, leaving room for different interpretations. In one of those, Foucault regards biopower as a technology or toolset that appeared in the late eighteenth century for managing populations. It incorporates certain aspects of disciplinary power. If disciplinary power is about training the actions of bodies, biopower is about managing the births, deaths, reproduction and illnesses of a population

(especially when regarding the 'We' and 'It' paradigms, see Chapter 12), then, in the analysis, aspects of hope and faith come into play.[210] When faith is defined as "… the substance of things hoped for, the evidence of things not seen" (Hebrews 11:1, KJV), then faith provides the agency for the handling[211] and transfer of knowledge.[212]

Linking Information to Embodied Knowledge

When information is contained in *oratio*, there is an ongoing connection with *ubuntu* and the other components of *the Big Five* (especially '*relatio*', see Chapter 15). To disembody information by taking the human carrier and what is being carried apart (for instance, in the process of textualisation) represents a significant action with relational consequences. Of course, when knowledge is decontextualized or deconstructed (for example, by putting it in writing, see Chapter 3), the information becomes significantly different in nature and may be unfit for its purpose.[213]

In Africa, information exists when it is being interacted with, when it is being 'talked about' (see also Chapter 3). Information is part and parcel of reality and interacts with the lived world. Information does not exist apart from the lived environment. Also, information does not live in a deconstructed or abstract reality. The effects of information in African practices are well described in the various works of Francis Nyamnjoh. For instance, in his general theorisation on African media, Nyamnjoh argues from his case study of media in Cameroon, that the media not only reflects, but also shapes, African societies. He argues for responsible behaviour – here seen as *oratio* – aligned with Africa's sociality, negotiability, conviviality and dynamic sense of community [18].

The recognition of the manner of *oratio* has potential consequences for interactions facilitated by technology. For instance, *oratio* influences processes for the handling of

[210] I regard this notion to be supported by Donna Haraway, who requests an expanded objectivity, incorporating all aspects of reality as a possible alliance (in her case, including simians and cyborgs) [16].

[211] Faith and embodiment are closely related, as "… faith comes from hearing …" (Romans 10:17a, NIV).

[212] From a creationist point of view, God created existence in a phonocentric way: by speaking. Further, interpretation of the Bible necessitates *rhema* (spirit) to understand the *logos* (written word) [17]. Hence, *oratio* intrinsically links in with cosmologies.

[213] The only overarching facility I am aware of is 'the letter'. The letter format is generally understood to transmit information in a written format from one human being to another (conglomerate of) human being(s). The materiality of this written document, by its very nature, conflicts with *oratio*. However, relying on the letter-format to be widely understood, I am using a letter format for this deposit, in the hope that it is able to bridge the different frames of reference.

resources; for example, the process of bringing a computer or equipment for an Internet network into a rural village involves many people and authorities, who all need to be interacted with in a manner and at the point where everyone is at [19]. This process is highly guarded by the community and activities are careful planned, including how to move between places to ensure that any representation of (new) information and the growth of embodied knowledge are aligned [20].

The dismembering of information from embodied knowledge, for instance, by putting the information on an electronic platform, is, as far as I have experienced, not yet set in many African communities. Electronic information is by its very nature easily copied, but the status of that information in conjunction with *oratio* is yet unclear. The lack of words to describe concepts (such as electronic information) in the vernacular languages spoken in rural Africa is a sign that the meaning of such concepts has not yet been fully embodied in the knowledge of the community. Words are linked to worldviews and culture [12], and lack of words in the vernacular may be evidence of a lack of connection between an intervention and a sub-Saharan community.

The ramifications of transmitting information using electronic means and formats needs to be carefully reviewed within African communities that rely on *oratio* for the gatekeeping and management of embodied knowledge. There is ambiguity with the transmission of information electronically, as electronic information and its means of transmission are not intrinsically linked to the community. Electronic information can flow independently, without being explicitly commanded by human actors, and has the ability to be transmitted quickly and widely. In this process, electronic information negates human gatekeeping processes, potentially disturbing any carefully-managed interaction process or positioning of relationships in view of (super-colonial) powers. As the facilities required to use electronic information have only entered Africa relatively recently, the significance and ramifications of the transfer of information into electronic data have not yet been settled, and the relationship between its transfer and embodied knowledge (production) is not yet clear. Digital information does not carry any information on its embedding in the community. Therefore, with regards to *oratio*, further research on the effect of imported technologies is warranted.

The Dynamism of Knowledge

In contemporary times, knowledge is generally regarded as ‘truth’, which comes about when the value of representations (like in data points, data sets, and methodologies) become ‘fixed’. This fixating, in turn, influences other times and places, not only changing, but also constituting, social constructs in a manner not intended by those who created it.

As seen in Part II, the homeostating of information in *numerical values* has become a tool of (super-)colonialism.

Oratio does not sustain fixated knowledge. *Oratio* is dynamic in the manner in which embodied information continuously constitutes realities. This can be seen in the positivistic analysis of a song being sung on different occasions in an African community. The singer can claim, in *oratio*, that 'the content of the song is equal', while an observer operating from outside *oratio* could conclude: 'no, this is not equal, see some words are different'. Thus, although the meaning of the song remains the same (= the knowledge embodied in it), the deconstructed parts might (and most probably will) be different on different occasions.

Coming from the perspective of *oratio*, in the African empirical world I have witnessed that any enactment in time and space is meaningful. As all are connected, the one that communicates lets information interact with interlocutors *all the time*. Any movement is, therefore, significant: any presence in time in a location is relevant (for instance, providing information on the 'why *here'* and not '*there'*?). As everything interacts, action is set in time and place.

Action continuously *improvises* on what exists so far. This does not allow for a 'backwards reading of events', which Tim Ingold and Elizabeth Hallam [21] described as the hallmark of *innovation*. As its content is linked to a physical presence, embodied knowledge does not look for innovation, but for *improvisation* [22]. Further, I argue that knowledge, as understood through '*relatio*', cannot be instantiated from *here* to *there*. Through improvisation, involving generative, relational, and temporal actions, there is continuity in the relationality of knowledge to time and place. Referring back to Ingold and Hallam [21], each interaction is in relation to the context, a creation as a point in time and space. Subsequently, the meaning of the interaction morphs into embodied knowledge, as a sort of cone, growing in width with meaning and space in time. All events and all embodied actions are, thus, meshed with all previous actions, and influence the future.

The Non-Applicability of Certain (Western) Forms of Knowledge in Sub-Saharan Africa

In the West, the rapid 'professionalization' of knowledge – which is developed in 'ivory towers', put in writing, handled by (academic) elites and fed to youth in higher education settings – has led to a growing disconnect within African settings. This knowledge – which is produced in management settings focused on achieving outcomes (instead of 'engendering community'), with the crafty use of tools of development (software,

computers, and so on), and embedded in the most updated versions of hardware and software – links knowledge to a context that is far removed from daily life in Africa. In rural Africa there is generally no (history of) Internet connectivity[214] and no access to the latest hardware, software or programming languages.

Thus, although particular knowledge does exist, as can be observed in the so-called 'body of knowledge,' this knowledge does not necessarily exist in an embodied knowledge format in Africa. Possibly, embodiment can be recognised when processed through conferences and meetings; however, as seen in Chapter 11, those centres of production are invariably in the West. Therefore, even if embodied knowledge exists in the centres of production, it does not exist in exactly the same way as in African communities.

Conclusion

In this chapter, I provide insight into an *oratio*-perspective that is dynamic in nature and that does not allow well for static representations. I have argued that *oratio*, as understood from an African perspective, does not align with a Western construct where knowledge is written down, and, thus, regarded as universally valid, both in time and place. The Western knowledge system, in this regard, has a loop in which a social construct begets a technological construct.[215]

Oratio is understood when reviewing indigenous knowledge. However, this form of knowledge is under siege and widely misunderstood. Indigenous knowledge is a knowledge system that allows for dynamism, in which knowledge is constantly reassessed and made applicable to the particular context. *Oratio* integrates interactions with experience. It positions 'what is being told' within a tangible and observable reality. *Oratio* pulls the communication into an environment embedded in moral norms, so that the strength and acceptability of the communication can be assessed. This assessment includes how it meshes in with the agenda, as set by community, in *ubuntu* connecting with the 'real world' as it unfolds, linking in with a cosmologic existentiality.

[214] The Alliance for Affordable Internet [23] reports that since 2017 there are more people connected to the Internet then not connected. This meant that before 2017, most people in the world did not have access to the Internet. This also means that, for most people, there is no history of Internet connectivity.

[215] Here, I postulate that in a Western setting, a social construct is thought to be known when put into text. Such text subsequently becomes enshrined in 'a system' and starts to bare offshoots in the form of models, techniques, technologies, etc. When those technologies are created, they influence the social society. This society, in the meantime, has advanced in time. Therefore, the natural and thought derivatives sustained by the textualisation of information into knowledge gains an agency that influence people in subsequent times. In the same way, it influences people in places where it was never tested.

Oratio is an intrinsic part of *the Big Five*. It exposes the psyche of human beings towards information and knowledge in context and at the time of interaction. It grounds creative involvement and embodiment at the time of interaction, bringing to the fore all aspects of knowledge, including ideologies and any form of meaning-making, in and for embodiment and representation. *Oratio* ensures interaction, to align knowledge within the culture, civilisations and universes, as known and represented at the moment of interaction [23]. *Oratio* allows for room for all ways of life and knowledge traditions and also for the inclusion of what is often labelled 'traditional knowledge'. *Oratio* ensures communications are in tune with existing embodied knowledge, creativity and imagination, countering the regressive logics of exclusionary knowledge. Oratio ensures that embodied knowledge is embedded in conviviality, interconnection and interdependence and with all potential in the community.

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Chapter 17

Relatio: Relational Resource Allocation[216]

Contents

[216] Based on the paper 'Relatio: An Examination of the Relational Dimension of Resource Allocation', co-authored With Kevin Sheneberger and published in 2011 in the *Economics and Finance Review* [1]. This work is based on original research conducted by me, on which I reflected with my co-author. For the purpose of maintaining the flow and consistency with other chapters, 'we' has been changed to 'I' throughout when referring the authors.

Introduction and Methodology

Part II provided evidence of community views in Macha, which are at odds with many expressions drawn from an individualistic perspective. Ramón Grosfoguel [2] argues that an individualistic perspective is the leading perspective emanating from the West. This is illustrated by the concept of an 'economy': in many African communities, I encountered the concept of an economy as existing to facilitate *sharing*, not harking the benefits of ownership. In such a concept, ownership is a communal expression and not linked to an individual [3]. [217] This example provides a specific and contextual perspective on appropriate means of interaction in such communities. Further, it allows for the misinterpretation of events when viewed from Western perspectives. Fuelled by unresolved colonial and colonial relationships and systems, the prime reason for human interaction is (in the current dominant view) approached as a negotiation of power and resources. This scheme necessitates resources being regarded as 'owned' by an individual entity and, therefore, their dissemination is to be pursued through a process of negotiation in a market economy. In the communal views I have explored in Part II, interactions are primarily meant to establish relationships [4]. When discussions on the sharing of resources occur, the perceived governing authority over the resource is considered to offer resource sharing as a means of strengthening the relationship. In practice, the prevailing discordant views seems to lead to personal and economic damage, domination, and systematic oppression in Africa as shown in Chapter 13.

This chapter discusses the third value in *the Big Five* – '*relatio*' – or relationship credit, in which wealth is created socially and resources allocated based on social position. This system of resource allocation, which is based on trust and recognises the interconnectedness of people, operates in many parts of African economies.

In Africa, there is a Tonga saying that states, '*Munwe omwe taupwai njina'*, which means 'One thumb cannot crush lice'. The essential message is that even the simplest task depends on outside assistance. The concept behind this saying finds resonance throughout the African continent: in Shangan it is '*Rintiho rinwe a ri nusi hove'* – 'One finger cannot pick up a grain'; in Nguni, it is '*Izandla ziyagezana'* – 'One hand washes the other'; in Setswana it is '*Motho ke motho ka batho'* — 'I am because you are'; and perhaps most famously, in Xhosa it is expressed as '*Umuntu ngumuntu ngabantu*' — 'A person is a person because of other people'. As Archbishop Desmond Tutu writes, "… my humanity

[217] Through a generalised and particular essentialistic description like this, I aim to provide a short-hand indication of a concept I was introduced to in African communities. Although concepts like this can be recognised in In daily life, of course, one can find any conceivable human behaviour inside of outside such concepts in practice. As such, this description of a concept should be seen as an indication of an emphasis along a spectrum of possible behaviour.

is caught up, is inextricably bound up, in theirs. We belong in a bundle of life. We say, 'A person is a person through other people'" [5:34]. This concept, which is part of the philosophy of *ubuntu*, is a true expression of African uniqueness (see Chapter 15).

Contrasting Western philosophy with *ubuntu*, Archbishop Tutu said "It is not 'I think therefore I am'. It says rather: 'I am human because I belong'. I participate, I share" [*ibid*.]. This philosophy was the fuel that kept the South African Truth and Reconciliation Commission running, in that it connects self-interest and suffering to the society at large [6]. This philosophy holds that one cannot rightly be at peace without forgiveness when the wellbeing of the offender is directly connected to one's own wellbeing. Broadening self-interest to include all that composes one's identity (community, culture, language group, nation, and so on), results in some very interesting resource allocation outcomes. Classical conceptions of rational-choice, altruism, long-term stability, and entrepreneurship must be challenged, adjusted, and enlightened by this expanded vision of welfare gleaned from Africa.

Relatio addresses an expanded model for describing economic behaviour influenced by *ubuntu*. *Ubuntu* provides the philosophical framework (abstract) for practices that form the cultural reality. *Relatio* – or relationship-based economics – is the day-to-day tangible manifestation of this idea in the economic realm. *Relatio* gives *ubuntu* a living, breathing body that can be recognised, analysed, and interacted with. This chapter is not meant to be a normative statement extolling the merits of a *relatio*-driven system, nor does it aim to rebuke rational choice or western economics. Rather, it hopes to establish common ground between typically contradictory worldviews. This is not to say that there will not be some degree of value ascribed to the system of *relatio* – indeed, due to the predominant world order, the lessons and values of *relatio* tend to be undervalued at present.

The true goal is to realise the reality of, and necessity for, *relatio*-thinking in African developments, and to provide a vision of a future in which relationship values and resources are accepted and incorporated into traditional economic modelling. This will be accomplished by first presenting a brief review of the literature regarding rational choice to provide some insight into the heterodox nature of *relatio* choices. Next, the structure of the *relatio* system will be outlined, by looking into the macro- and micro-economic manifestations of the relational calculus.

In line with the methodology and context set out in Chapters 2 and 4, this chapter is based on evidence gathered from personal interviews, conclusions drawn from observations, and an extensive literature review using on-line libraries. Any generalisations made do

not imply that the specific observations made in Macha and other communities in sub-Saharan Africa should be extended to the whole and vast diversity of African realities.

Understanding Rational Choice

A brief history of choice

Modernisation and development in Africa fall victim to the oversimplification of choice, by labelling that which is non-western as 'irrational' and that which fits a Western understanding of how resources should be managed as 'rational'. The assumption that the priority structures that inform choice should be cross-culturally homogeneous is not valid, as has been explained in previous chapters. Before describing the realities of the relationship-based economy, it is necessary to examine the relevant literature regarding the voids present within the classical conception of 'rational choice', in addition to the academic foundations of *relatio*.

The most basic framework of rational choice holds that an individual *reveals* preferences by choosing one bundle of goods or services over another, given constrained resources and boundless desires. It is assumed that consumers want to choose the best possible bundle of goods, so long as preferences are complete (a consumer either values one good over another, or is indifferent between the two), reflexive (one bundle is at least as good as an identical bundle), and transitive (the ranking of bundles has a logical flow: If A=B and B=C, then A=C). However, complex, human reality generates a larger number of variables that demand more sensitivity than this basic structure provides.

In her work: *The Power to Choose*, Naila Kabeer [7] details the evolution of alternative choice models. One of the first alternative models, Gary Becker's 'new household economics', introduced many new perspectives in choice analysis [6]. The Beckerian household considers the social responsibilities of the individual, arguing that – rather than imagining an isolated individual consumer as the target for choice-analysis – the entire household must be taken into account when determining preference. In addition, this perspective views the household as an agent of production as well as consumption, which leads to a two-stage decision-making process for resource allocation: first, the production decision, which is made to maximise the output of each member of the household, and then the decision on how to allocate the resulting resources among household members [5]. This model sheds light on household choice patterns (such as the role of gender in employment-seeking behaviour), expanding on strict, individualised rationality. By viewing the process of economic choice in terms of households, rather than individuals, it is also possible to consider behaviours that are not measured by the formal economy, such as childcare, cooking, cleaning, and other unpaid household duties. Through the lens of comparative advantage, the household's choice to keep a female

potential wage earner out of the labour market may seem more rational, as women may be perceived to be comparably more efficient at household duties.

The problem with rationality

Another problem with the idea of a simple form of rational choice involves the aforementioned plethora of variables that the average consumer is faced with. Assuming the optimality of rational choice, one must also assume that the consumer not only has knowledge about every potential alternative bundle, but is able to instantaneously engage in the calculus necessary for the ordering of these bundles. In reality, the consumer considers only the bundles with which he or she is familiar, and the optimality of the choice is limited by the ability of the consumer to weigh preference in real-time; were this not the case, incidences of 'buyer's remorse' would be unheard of. The truth about rationality, as Louis Baudin states, is that "it can, of course, err: erroneous reasoning remains rational. It is the insufficiency or absence of reason which determines irrationality" [8]. While rational choice holds that a consumer, given logical preferences, chooses the *best bundle*, a consumer's preferences can be volatile, and that which is rationally preferred in one instant can be altered the next. It is not the resulting satisfaction with a given choice that makes that choice optimal, but rather the fact that the choice was deemed optimal at the time, given some linear sequence of preference. With the introduction of this concept, rational choice is entangled in a knot of subjectivity; where the *logic* of one's choice is relative to the period in which the decision was made.

Louis Baudin [8] further states that it is necessary to draw a distinction between non-conformism and irrationality; to this end, he cites an example of a South American villager making flutes. As more flutes are ordered from the villager, the price per flute increases. The author, bewildered by the price schedule that discourages mass purchasing, asks the villager the reason for the seemingly backward business plan; to which he replies: "to make one flute is fun; to make six would bore me; to make twelve would be simply unbearable". This example demonstrates two important facts: first, that despite the economist's ideas of what might inform choice behaviour, preference and choice rationale are unique to the individual; second, that production choices can be informed by non-monetary inputs and, in many cultures, these inputs have more significance than cost [cf. 9].

Social economics

The appreciation of individual preference is important, but equally important is the realisation that, without the social freedom to choose, this preference is rendered irrelevant by the choices of those who do possess such power. Returning to Naila Kabeer [7], she explains that within a household behaviour is "underwritten by a series of 'implicit contracts' which spell out the claims and obligations of different members to each other

and which are backed by the norms and rules of the wider society" [3:25]. Given the breadth of the household choice function, the most important question becomes: Who makes decisions within the household? In a perfect world, one could assume that household choice is simply that – production and consumption based on the aggregate demand of the entire household; however, in many, if not most, cultures these choices are made almost exclusively by the male. Other members of the household have input into the decision-making process, but this input is relative to cultural norms and intra-household bargaining games. Kabeer also refers to rationality as factoring into inert behaviours, or patterns of action that do not require choice. "'Inertness'", Kabeer writes, "reflects the fact that many aspects of behaviour are governed by rules and norms which have evolved over time on the basis of recurring events and which help to create routines and customs in different domains of decision making" [5:21]. In this way, choice (or the ability to choose at all) is bound by expectations of actions and identity within a greater society.

According to George Akerlof and Rachel Kranton [8], one's identity within society is determined by a system of payoffs, based on action. They assert that societal identity is determined by four factors: "(1) People have identity based payoffs derived from their actions; (2) people have identity based payoffs derived from others' actions; (3) third parties can generate persistent changes in these payoffs; and (4) some people may choose their identity, but choice may be prescribed for others" [8:717]. The pairing of Akerlof and Kranton's findings with the inertness mentioned by Kabeer helps to describe a system in which the individual's ability to act independently is severely restricted; first by the nature of his or her inert responsibilities, and second by the identity he or she is prescribed because of the social pay-off structure.

The altruist paradox

This element of choice, or lack thereof, is also informed by Amartya Sen's concept of the *perceived interest response*, where one's sense of self-worth relative to others can lead to the sacrifice of wellbeing in the short-term to serve one's long-term interests [9–11]. Sen's work is largely concerned with this anomaly of rational action known as 'altruism'. Attempting to explain pure altruism through a rational-choice frame is a bit like being awarded a prize for humility: any attempt to use it for what it was intended negates its existence altogether. In other words, if altruism can be expressed in rational terms, it becomes a rational action, and can no longer be considered purely altruistic. Herbert Simon writes that "within the framework of Neo-Darwinism […] it has been hard to account for altruism, behavior that reduces the fitness of the altruist but increases the average fitness in society" [12:1665]. He mentions reciprocal models of altruism, which state that the altruist expects those benefiting from the altruistic act to 'return the favour' (however, this is dismissible on the aforementioned 'humility prize' grounds), and adds

his own explanation of genuinely altruistic behaviour. Simon's model argues that sensitivity to social influence balanced against the net social benefit of altruism creates a social situation in which a certain level of non-reciprocal altruism can emerge. In this case an intuitive sense of community or instinctual commitment to the social whole facilitates behaviours that, in the short term, could be considered a violation of self-interest. Although Simon's assertion is that this type of behaviour in a group can be considered altruistic, when taken to a higher plane of perception, it can also be considered quite rational. When one's short-term and long-term survival are strongly linked to the survivability of the whole, actions that improve the average fitness of the group at the expense of individual fitness become an important tool for the maintenance of personal security.

Irrationality: The salt of life

We have seen rationality develop from an individualised binary system of preference modelling to a complex social matrix of bargaining and identity, with each new insight into rationality offering simultaneous insight into those facets of human behaviour that have eluded previous analysis. Through Becker's new household economics', the concept of the individual was expanded to include a dynamic range of actors, who bargained for influence over economic behaviour. False irrationality (due to imperfect information, as well as misconceptions of rationality) presents another challenge to analysis and predictability. The impact of society on choice also forms an obstacle to pure rationality, through both inert behaviour and socially-prescribed identity. The impossibility of rational altruism means that, if self-sacrificial behaviour is to be factored into any form of rational analysis, it must be linked to some internal or social pay-off structure. It is important to remember that the economic avenues for analysing choice should be one-way streets; in other words, the course for the economist should be to take observed behaviour and construct a model around it, rather than to construct a model into which facts are forced to fit. With the great value placed on rationality as a determinant of economic behaviour, it is easy to forget that economic behaviour is the source of our notions of rationality in the first place. Perfect rationality is not the end-point of a utopian economy; to the contrary, it is merely the lowest common denominator between the economist and the incredibly complex, organic, and unpredictable reality of human choice. Louis Baudin puts it most eloquently: "Irrationality is not only necessary, it is pleasant, it is the salt of life; irrationality must be credited for carrying us through dreams and away to fairyland, for throwing into the monotony of daily life a note of fantasy. Intense and prolonged rational behavior tends to destroy man's vitality" [8].

The Relatio Economy

With this understanding of rationality in place, the uniqueness of the observed African economic experiences is made clear. Although previous models of economic behaviour can explain this experience to some extent, there exists a dimension of activity that remains unaddressed. Household economic analysis can help to describe the collective nature of decision-making on a day-to-day basis, but falls short of expressing the breadth of African identities. The cultural boundaries, especially in rural areas, certainly impose a great deal of inert behaviours and responses based on social identity, but the exact way that these forces impact on long-term and short-term decision making are not adequately understood; many economic patterns are falsely labelled as irrational and seemingly altruistic acts abound, but no means for distinguishing between the two is available. While many of the aforementioned elements restricting choice are present in African societies, the reality of resource allocation goes further than mere bounded rationality. By taking an in-depth look at first the macroeconomic and then the microeconomic structure of the relationship-based economy in rural Africa, the depth of this uniqueness can be fully realised.

Macroeconomic level

If one were to strip a typical Western economy back to its basic elements, one would find a banking system, a system of markets, and a system of regulations. These can be understood as formal structures that address larger issues facing a given population. Banking provides for stability and growth, markets facilitate the flow of information and maintain purchasing power parity, and systems of regulation create fairness (for example, against market failures like monopolistic competition) and uniformity. Surely, there are more elements to be considered, as well as overlaps between systems – for example, a bank is a firm and also part of the market – but for the purposes of this example, I focus simply on the primary actors involved in answering the basic questions of economic production and allocation. *Relatio* satisfies the basic needs of an economic system by replacing classical economic actors with relationship-based alternatives.

The bank of relatio

Formal banking systems, as understood in a classic economy, are in short supply and very difficult to access in the rural areas of sub-Saharan Africa. The function of a bank is threefold: the long-term financial security of individuals (established through savings), the short-term provisioning of resources (made available through loans), and the provision of a means for making the exchange of goods and services fungible (provided by the central bank and circulation of currency). These are realised in *relatio* through what can be thought of as an informal, inferred system of *relationship credit*. Each individual actor in the *relatio* economy has an unwritten account, which is managed by the greater society. One makes *deposits* into this account by displaying good character, following

social norms and obligations, and by unquestionably-releasing resources as they are needed; one makes *withdrawals* by displaying poor character, breaking taboos, and – to a lesser extent – requiring the resources of others. Therefore, within this system, it is possible to secure one's future by obtaining social value and maintaining connections with the community. Intangible though the allocation of resources based on mere trust may be, it is important to remember that paper money is no more than a statement of trust itself. The exchange of paper money for "all debts, public and private" is only made possible through a socially-acknowledged trust in the government issuing the currency. As Louis Baudin observes that:

> *... it is an instrument used by the mass of individuals and it rests on confidence sanctioned by habit. Variations of its internal value are slowed down at the beginning of inflation and accelerated as soon as a certain threshold of mistrust is reached.* [8]

Despite the fact that paper money is based on trust, those who aim to accumulate currency are not deemed *irrational*, nor is the abstract system of paper money difficult for the average consumer to comprehend. In *relatio*, it is simply the case that the physical link to the same symbolic exchange has been removed and trust individualised.

The second role of a banking system, the short-term allocation of resources, is realised in *relatio* through similar means: one's social status and relationship value replaces Western systems of credit scoring and collateral almost directly. If an individual has a need, the immediate questions presented to the creditor are: 'What is the standing of this individual' and 'What is the immediacy of this need'. These questions are asked in this order, as the standing of an individual can potentially override the necessity of the second question. Because rural areas are resource-constrained, the margin of error for the allocation of resource must be kept razor thin. For this reason, it is much more common to see resources dispensed freely for short-term needs like food, planting, or piece-work, than it is to see resources allocated for long-term, high-risk projects. This is not to say that long-term projects do not exist, but merely that in the realm of individual credit, daily needs are prioritised.

Finally, the banking function of making the exchange of goods and services fungible is fulfilled in *relatio* primarily through loose conceptions about individual property and the trade of goods and services, again governed by social standing and need. While currency is certainly used, the money supply is relatively low for several reasons: the inaccessibility of the nearest formal bank (for example, a few hours travel time through irregular transport from Macha) and the lack of wage-based employment by sources outside of the community, among other things. In this way, the traditional function of currency as a

means of making resource allocation efficient is hindered by the lack of infrastructure to make it properly fluid. Thus, the *flow of money* – in terms of value – is forced into serpentine tributaries to maintain its course of converting value. This transformation manifests in the sharing of all resources within the community, which, to an outside observer, may appear to be irrational or altruistic. This is closely related to the concept of social capital. Gunnar Lind Haase Svendsen and Gert Tinggaard Svendsen assert that "social capital 'lubricates' civic society. The outcome is a voluntary provision of collective goods…reduc[ing] transaction costs and enhanc[ing] economic growth" [11:615]. The system of *relationship credit* can also be thought of in terms of social capital. The perspective set forth by Svendsen and Svendsen is one of "'Bourdieuconomics' – [which] involves the usage of a capital theory that, methodologically, operates with economic and cultural forms of capital at the same level" [11:626]. In other words, relationship credit can be thought of as simply an additional – equally significant – form of capital.

Once the 'Bank of *Relatio*' is understood – i.e., that wealth is created socially, that resources are allocated based on social position, and physical currency is not efficient – it is clear that so-called *altruistic* actions as methods for securing value are as valid as wage labour, if not more so. It is important to recognise that this system does not follow Western conceptions of strict accounting; no 'books' are kept and the level of credit afforded is determined more by ones place in the social hierarchy and less by the resource burden one may create. The behaviours and events that reflect one's relationship position have much more impact on the allocation of resources than concrete data, financial transactions, and even the amount of resources available.

The relatio market

The system of markets, another key element of the classical economy, differs from the banking system in that a thriving market system exists in rural areas of Africa in a tangible, classical sense, while the banking system finds no such physical counterpart. At this point it is necessary to digress, for the sake of clarity, to elaborate on these parallel economic systems. While a market system exists concretely, it is important to realise the existence of a 'relationship market' as an actor in the local economy on a different level. Purposing two simultaneous, separate, yet interrelated, systems to satisfy the needs of an economy may seem confusing; however, while the formal system acts in the foreground, the second (equally significant) relationship system operates in the background. It is with this system that this chapter is concerned. The economic system satisfies needs through the allocation of tangible resources, whereas the relational system satisfies needs through the allocation of abstract resources. With this in mind, it is necessary to pull focus momentarily from the tangible system of markets and management and turn instead to their abstract equals for fulfilling the fundamental needs of the economy.

To extend the previous parallels into those of the market of *relatio*, if the banking system of *relatio* mints currency and manages credit, the market of *relatio* is the way in which this currency is used and credit established. In addition, the *relatio* market serves to increase stability and predictability by acting as a mechanism for sharing information. This is accomplished through the demonstration of character in the community, by proving one's trustworthiness, as well as by investing in relationships as a part of daily life. It is a common sight in the *relatio* economy to see an individual stop between work activities to engage in extended social interaction with another community member; this type of activity has been incorrectly observed by many as a lack of focus, ambition, or work ethic. In reality, it is a type of multitasking – transitioning from a tangible form of accumulating resources to an abstract means of doing the same.

Regulating relatio

Much like physical markets, language, or any other large-scale works of social invention, an individual is able to understand, interact with, and obtain a high level of mastery within the market of relationships. However, an individual is unable to control it in its entirety. At this point, a means of regulating relationships is necessary. Although the average individual in a community is unable to make large changes to the overall norms and values that define what is possible in the relationship market, certain individuals of high standing are. In the same way as a government may institute price controls that violate the normal equilibrium of a market, a socially-significant actor (such as a chief or headman in a rural area) can mandate realities within relationships. As mentioned previously, a person's standing, or relationship credit level, determines his or her treatment in the community. This manifests in many elements of day-to-day life, from one's ability to procure resources in times of need, to the willingness of others to include one in economic activities. These socially-defined standards of behaviour are communicated through the market; however, a proclamation to the contrary from a person of authority can override the tendency of the market. Following the price-control example, such action can result in inefficiencies, as the socially-determined character of the individual is most likely based on the repetitive observation of behaviour and, therefore, set with a high-level of accuracy.

It is true that relationship building and maintenance is not an idea foreign to Western business or economic modelling. To be sure, strategic networking and trust building are some of the most useful tools of the trade for the successful entrepreneur in any economy. The crucial distinction is that, in the African experiences, relationships are not merely an element of economic success, but an end and form of success all on their own. One way in which this dual-mindedness can be understood is by looking at Helmuth Heisler's analysis of the colonial and post-colonial response to the accumulation of monetary wealth in Zambia. He finds that "wage labor was often regarded by the rural

African as another means by which his fortune and that of his rural society might prosper. European clothes, for instance, might earn him more esteem within a precapitalist society […]" [16]. In this way, as an individual was technically working for a wage, his end objective was based in relationship success. In addition, Heisler cites Elizabeth Colson's finding that "[m]oney was interpreted as an equivalent of some other valuable and was not accepted as an independent standard of value through which other items could be equated" [16]. Certainly, these initial reactions to wage labour and currency have changed dramatically over time, but it remains an important insight into the essential structure of priority, and the split interest between relational and monetary success.

Microeconomic level

From the macroeconomic foundation of relationship-rationality, the structure of microeconomic behaviour is built – with the most significant difference between the classical economic system and the system of *relatio* being the budgeting for long-term versus short-term stability. The traditional capitalist approach to the day-to-day decision-making process is primarily concerned with the accumulation, interpretation, and application of hard data to inform the production or consumption process. For the average firm, each short-run step mandates an elaborate sequence of project proposals, financial projections, market analyses, and other attempts to promise secure investment. In this way, each choice is made from a place of stability, attempting to eliminate as much risk as possible. The economy relies on its ability to predict outcomes and trends by meticulously analysing current information, and by requiring as much detail as possible from those with whom it interacts. This tendency of valuing short-term security renders long-term stability nearly irrelevant; if each step made in the short-run is carefully premeditated and informed by each previous step, whatever may happen a few calculated steps down the road cannot present much of a challenge. This is not to say that planning for the future does not exist – undeniably, five-year plans pack the training manuals of even the smallest economic contenders – but the potential of these plans is most likely to be still dependent on the calculus of short-term feasibility.

In contrast, most actions undertaken by an actor with a *relatio* mindset work towards long-term stability. The African experiences (with the instability of environmental, political, medical, and other factors) have demonstrated the utter unpredictability of the short-term, while security in the long-term is limited only by the aggregate life-span of every member of the community to whom the individual is connected. This distinction helps to explain certain behaviours, such as the constant expansion of one's social network, the extreme efforts made to attend significant social functions (such as weddings and funerals), and the willingness to surrender resources needed for short-term development. What is made available in the short-term is consumed completely, immediately and, in some cases, without much discrimination. This is due largely to the

aforementioned unpredictability of day-to-day circumstances; if a resource is available now, it is best to consume it before it diminishes, decays, or is taken away. With relatively stable long-term provisions, or at the least, long-term provisions that are linked to the success or failure of the community at large, pitfalls and hardship in the short-term can be easily endured.

Thus, each society – both the classical economic and relational – is most concerned with the less-secure term – which is the long-term for the former and short-term for the latter. This dictates both choice patterns and the rationing of surplus: when choice is possible, it is made towards the more secure term, and when surplus is available, it is invested in the less secure term. In this way, the cycle of incentive is effectively sealed – with western economies placing a high priority on entrepreneurial success and innovation in the short term, in order to minimise the uncertainty of the long term, and relational economies placing high priority on egalitarian unity in the long term, in order to make resources more elastic in the short term. In practice, this perpetuates the two contrasting paradigms through the encouragement of competition in one system and by discouraging individualism in the other. In essence, the *relatio* economy is perceived as a zero-sum game, wherein resources possessed by one individual are resources unavailable to another. Thereby, the accumulation of surplus is monitored by the community at large and the use of surplus for personal gain can be detrimental to one's relational success. Returning to the social-capital work of Svendson and Svendson [15], one can see evidence of this negative aspect of social connectedness. They point to an example from Malta, wherein a village community's extreme closeness made it so that "demand for participation in joint activities ultimately leads to a demand for conformity" [15:624]. They suggest that this *curtailed freedom* helps explain what is known in the development community as *brain drain*. This tendency for the 'best and brightest' in a population to leave in search of better opportunities is commonly attributed merely to the existence of greater opportunities outside of the immediate community, rather than what is observed in the *relatio* economy, which is that initial environments that are often hostile towards those exhibiting entrepreneurial or independent attitudes. Although this long-term provisioning may discourage specific plans for expansion, investment, or opportunity in a Western sense, it is important to note that demand for conformity exists because it satisfies the primary goal of the *relatio* economy: to maintain social harmony and sustenance (for more on brain drain see Chapter 9) [16].

Conclusion

We have seen how the system of *relatio* allocates resource in macroeconomic terms, by providing relationship equivalents to banking, markets, and regulation. On the

microeconomic level, *relatio* manifests in the contrasting of time-horizon priorities between traditional rationality and *relatio*. As mentioned previously, Western economic conventions and *relatio*-based economics are not necessarily mutually exclusive; both dimensions of behaviour are undeniably present in all human activities worldwide. However, the dominance of one over the other and the awareness of the intricacies of each system vary widely from culture to culture. It is suggested here that, in order to foster effective economic symbiosis, the primary mode or dimension of economic rationality must be fully understood.

By understanding these basic principles, the obstacles to development managed exclusively through a Western understanding of economic rationality are clear. Without active membership in the *Bank of Relatio* (that is to say, the community at large), the effectiveness of even sustainable and financially-sound projects will be severely limited. Without making efforts to display character and actively invest in the social market, the take-up rates and acceptability of the best-researched projects will be cut short. Without submission to and respect for social hierarchy, the most promising developments will be restrained. It has been established in the literature that a chasm exists between conventional models of rational choice and the type of choice that governs economics in the African environments. This chapter echoes the plea of Helmuth Heisler for the "study of the behavioural and structural determinants of economic action" [12:12], not only in Zambia, but wherever the *ubuntu* philosophy has impact. There is a human predilection to value only those systems that can be effortlessly observed, deconstructed, and ultimately, controlled; perhaps due to this bias, the full potential of an *ubuntu*-based model of economic rationality has eluded academia. The significance of recognising this facet of African uniqueness is most crucial to Africa's economic successes. In the past, emphasis has been placed solely on the development of Africa on Western terms; it is time that we begin to *experience people* and view the process to achieve sustainable progress as an exchange – not only of physical capital and currency, but also of values and culture. Development must also be conducted on the terms of those being *developed*. This process requires a shift of priority from front-loaded, formula-obsessed, pre-packaged development tactics toward more creative, long-term, flexible programmes that invest genuinely, not merely on a financial level, but on a relationship level as well. As stated previously, without the accumulation of capital in the *relatio* dimension – without the development of an interface between the material and the relational realities – any project is severely handicapped, if not completely crippled. By embracing *ubuntu*-economics, the vibrant complexity of human behaviour can be released from the shackles of traditional rationality and appreciated as an unrestrained force of culture, development, and true sustainability.

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Chapter 18

In Conclusion

Contents

You cannot measure an African success with a European ruler.
Alik Shahadah [1: online]

... with all humility and gentleness, with patience, bearing with one another in [unselfish] love [ubuntu][218]. Make every effort to keep the oneness of the Spirit in the bond of peace [each individual working together to make the whole successful]
Ephesian 4:2–3, Amplified Bible

Ultimately, the task of the philosopher is to try to be right too early. […] We have a duty to think […] utopian. To define the limits of the possible and the viable, and always stretch. But we must also keep listening and do not believe that we are right too early.
Philippe Van Parijs [2: online, translation author]

In an African Place

This work contains subjective theoretical derivatives emerging from my life in sub-Saharan Africa in response to the requested by Chief Chikanta and Fred Mweetwa (reproduced at the start of Chapter 1) for "support […] for further research and development of ICT in rural areas, also with an angle towards supporting the preservation of African culture" [3:4]. Through this work, I present my transdisciplinary and subjective narrative on my research in the rural community of Macha in Zambia and other rural settings in sub-Saharan Africa, such as in Manicaland and Masvingo Provinces in Zimbabwe.

In Part I of this thesis, I describe how, while 'living-the-life' in Africa (Chapter 1), I found little theoretical support for research from an African positionality and embracing African epistemologies, in an academia that seems locked in a Western positionality with little concern for the content or value of epistemological positionalities not situated in the West (Chapter 2). Congruent with the extended case method described by Michael Burawoy [4], and in an effort to recognise common cultural threads in African societies, I endeavoured to live *with* theory, *in* theory and *for* theory. '*Living* with theory', Burawoy [5] argues, takes away the separation between the participant and the observer, inspiring critical assessment of the conquest of existing theory and allowing for the conception of society in alternative understandings. This quest *with*, *in*, and *for* theory allowed me to participate while observing and to conceive of hypothesis while at the same time experiencing. Subsequently, I formulated theoretical perspectives on the various manners of oral communication I witnessed in Macha and other rural areas in sub-

[218] I have substituted the word *agape* with the word *ubuntu*. *Agape* in the original text is translated to the English word *love*.

Saharan Africa (Chapter 3), while reflexively searching for *meaning* in an African empirical world (Chapter 4). From my daily experiences, I deduced dominant framings, set in Orientalism, imperialism and colonialism, and presented them in Chapter 5.

In Part II, I explore evidence of sub-Saharan African realities. In these six chapters I present and analyse the context and outcomes of interactions in a system shaped by the hegemony of a capitalist elite. These chapters focus on information and communication technologies, as per the request by Chief Chikanta and Mr Mweetwa. The chapters in Part II are merely a selection of the texts I have written as community deposits and case studies that I have participated in – all published as community deposits in an ongoing process of sharing. They each describe a different aspect of African realities, illuminating the underlying colonialism that pervades daily life, thought, and technology in Africa. These narratives paint a stark picture of the situation in Africa and introduce thought-provoking philosophies to show how many African worlds are being disenfranchised.

The sequencing of Part I and II is intentional: it builds up the narrative on how I carried out the research in the empirical context in an African place to underpin the theories proposed in Part III. It also reveals my subjectivity, as all observations and deductions are related to my person and how and where I moved in the community and further afield. Of course, I do not claim that these studies are universally valid. My experiences and deductions are based on my *happening* to be *somewhere*, in both time and space. I link my observations to my desires (for example, to discern new theory), my notions of significance (for instance, valuing the knowledge of the people living in rural areas), and my aim to provide a culturally-sensitive and theoretically-rich narrative.

In Part III, I present the results and report on my attempts to construct theory by substantiating the empirical evidence in theory deposits. The hypotheses in Part III are models and perspectives on the workings of African agency for transformation. They are humble theoretical proposals, presented to contribute to the body of knowledge of academics and practitioners, to be laid in wait for 'local talent' to take them up in their furthering of community life. In particular, I present '*the Big Five*' to provide perspectives on African virtue epistemologies that could frame African realities to be understood relationally (through *ubuntu*), as embodied knowledge (through '*oratio*'), as shared resources (through '*relatio*'), and reconciled ('*domination'*) in the here-and-now ('*animatio*'). *The Big Five* provide a perspective on an African cultural heritage and how its narratives are lived in community, conversation, and abundance, matured and in the present moment.

My Learnings

The learnings in this work came out of my review and interpretation of the empirical world as it was revealed to me over time and through the stories shared by others in my vicinity. The deductions and implications were a surprise to me. It was revealed to me (through the extended case studies) that colonial exploits continue to constrain contemporary actors in Africa, even in relation to technology. Recognising that we are all influenced by the current 'Age of Super-Colonialism' is a troubling realisation. However, regarding the case studies as *icons* (in that they seek to provide indirect access to issues that exist beneath their surface), provides new vantage points from which to regard the ravishing of the African continent, its paradigmatic diversity, and the utility of information and communication technologies. It shows how contemporary practices of technology standardisation and production are crowding out African voices. Foreign academic research and technology (for) development, embedded in a (power) base situated in the West, seems insensitive and mostly unsuitable for use in African practices and cultures.

Participating in various African and non-African contexts, I have had to find my academic bearings in various interpretive trends. In close collaboration with peers in African communities and with the support of certain audacious academics, I have worked out an academic shaping of my own. This effort has culminated in the perspectives and hypothesis presented in this work. During this process I have found reflexivity to be crucial to recognising and building on such perspectives. Through the reflexive interpretation of everyday interactions and experiences, of myself and others, in Southern Africa and also further afield, I explored questions that are alive in African society. With a focus on information and communication technology, I recognised how practices are plagued by ongoing Orientalism, imperialism, and colonialism, which I subsequently labelled '*the Terrible Three'*.

The theories in this work unfolded interactively and retrospectively, from a constant looping between the critique of Western-dominated theories and practices, via a gallery of icons depicting the scaled-up practice of colonialism, to the development of abstract perspectives of African virtues, presented in *the Big Five*. Through interactions in Africa and abroad, I learnt that *the Big Five* are conducive to developing an understanding of how Africans sustain their cultural identities against the onslaught of Orientalism, imperialism, and colonialism, which has led to disenfranchisement for over 500 years.

To give body to the hypothesises presented in this thesis, I had to diverge from the dominant academic practices, in which (rural) African voices go unheard and where academics in privileged circumstances position and jostle to 'publish first' information gleaned from Africans. The patience with which to glean, and show respect for,

understanding in rural societies has resulted in an appreciation of some of the counter narratives that are enshrined in Africa's cultural heritage.

The Results

I regard this work as an authorised writing, as it is embedded in both European and African requests and support for my inquiry and underpinned by academic research approvals and African government permits. It is the result of embodied interactions, strengthened by purposefully inviting collaboration in its production; the sharing of, and conversations about, ideas; and the incorporation of all contributions from interlocutors and co-researchers everywhere that I have researched. Wherever possible, chapters are based on co-authored works. These works were written with the overall thesis in mind, but published as they came out, as the priority is transparency through community deposits (as mentioned in Chapter 2). To claim that any of these ideas or work is my own would be flawed as all interactions for the purpose of this research involved more than one party sharing knowledge and ideas.

In this research, I do not seek to control (see Chapter 4) or provide definitive, un-contextual or abstract answers. In fact, it would be my wish not to answer the research questions at all. In the search for *meaning* it must be remembered that meaning is particular to its context. An abstract, un-located, and un-situated environment does not exist. Therefore, it is in the contextual practice, rather than in abstract or constructed reality, that the *meaning* and *worth* of this work will evolve and how it is to be engaged with will be determined. Multiple interpretations, readings and re-readings are meant to interact with this work – in the interactive perspective ('*oratio*') lies its contributions, not in the 'answers' as such. I sincerely look forward to such interactions and hope that this text is considered as merely a point of entry for further inquiry. Such interaction might reveal how this research contributes to academic burdens where distinctions based upon race, ethnicity, locality, and class are still practised and where beliefs of a singular and material world continue to exist. Interaction is needed to counter the belief in the attainment of a single, objective description of supposed truth. Involved conversations allow meaning to be constructed in the interaction – where results are achieved collaboratively, in a multiverse society of human beings in their specific contexts and situations, interacting in an epistemological and metaphysical world.

But what about the research questions? It is tradition when writing a thesis to answer the research questions. As shown in Chapter 2, I have approached the research questions as merely starting points for a reflexive and ethnographic approach in an African place. The potential answers to the questions are continuously evolving and, therefore, as elusive

as a picture drawn in sand. However, in an effort to link evolved insights to the original research questions, I reproduce the questions and propose an annotated, short answer here:

> ***Research Question****: Within the African, indigenous context, and the setting of Macha Works, how do narratives of engineering practitioners – those that shape technology – construe relationships with foreigners, how do they reference colonialism, and what happens at the node of interaction of these narratives that would inform a narrative of the future?*
>
> **Answer**: The answer to this question reside in the recognition of an ongoing *super-colonialism* and the capacity of African communities to interact from African perspectives as described by *The Big Five*.

In this thesis I argue how realities in *an African, indigenous context* are often incongruent with realities in *foreign* places. I show that an embedded African manner of knowing is contested, whether as a philosophy or in its meaning making (Chapter 1). Extant research methodologies and contemporary research facilitation are not conducive to comprehensive access to such a *meaning making* (Chapter 2). For fruitful enquiry and the mediation of (undeserved) power (Chapter 4), I propose a theory of knowledge that is cognisant of the constraints of *the Terrible Three* (Chapter 5) and a *Clash of Paradigms* (Chapter 6).

As an indication of the *narratives of engineering practitioners – those that shape technology*, through reflexive writings, I presented my experiences in Macha, Zambia (Chapter 7). As a recipient of communal grace, embedded in the Macha community and an African engineering, I caste my nets of inquiry wider. Sensitive to an ongoing colonialism, evidence in this thesis indicates the misalignment of (foreign) technologies (Chapter 8 and 9), the practical exclusion of an African voices in engineering (in the case of the Fifth Generation of mobile networks, Chapter 10), and how technologies in the transfer of money constitute a narrative of love (Chapter 11).

The Terrible Three – with colonialism shown to be a colonial looping of condemnation, brainwashing and conditionality (Chapter 5) – sets *nodes of interaction of narratives* in against a background of *super-colonialism* (Chapter 13). This thesis indicate how the limited gains at *the nodes of interaction* are congruent with *super-colonialism* when taking into account the local values in what I labelled *the Big Five* (Chapter 14). The Big Five bring together ‘ubuntu’ (Chapter 15), ‘oratio’ (Chapter 16), ‘relatio’ (Chapter 17), ‘dominatio’, and ‘animatio’.

SQ1: How do actors narrate their contemporary situation with respect to colonialism?

Answer SQ1: Actors in indigenous contexts narrate their understandings in the form of stories of interactions between people in an unceasing re-evaluation in a 'continuous present moment' of events that took place.

This thesis shows that in an African, indigenous context, contemporary experiences are processed in the community to create actionable and embodied knowledge in the 'here and now'. As shown in this thesis, actors within the African, indigenous context assess situations from a relational point of view and using an ubuntu-inspired approach to reconcile diverse views on realities convivially.

SQ2: What narratives do actors use about the interactions in relationships possibly influenced by colonialism?

Answer SQ2: Depending on the actor's geopolitical position (in a center or a periphery) and depending on the actor's paradigmatic position (set in an 'I', 'we', or 'it-paradigm') diverse and often uncomplimentary narratives exist concomitantly.

This thesis shows that narratives depend on the contextual and geopolitical position of actors. The extended case study of an African, indigenous context like Macha Works, shows that narratives emerge from embodied interactions. These are contained in oral repositories, describe events, and are reconciliatory and convivial in nature, incorporating responsible efforts of sharing.

SQ3: What idioms are employed, and how do these idioms interact with predominant western modernist discourse?

Answer SQ3: The epistemic plurality and paradigmatic diversity in Africa supports a wide range of expressions, involving words, sayings, and, most importantly, understandings and practices embedded in communities.

This thesis shows how the idioms of engineering practitioners in Africa (i.e., the narratives that shape technology) do not align with a Western modernist discourse. Idioms, set in African engineering, are embedded in human connections, operate in partial oral cultures, do not align with capitalism, are embedded in communities, and, among them, critiques exclusions and aggressive competitiveness.

SQ4: What happens on the nodes where different narratives meet?

Answer SQ4: At the confluence of narratives the effects of *super-colonialism* are apparent resulting in the continued misalignment of technologies with local contexts, the continuation of the transfer of resources from an African place to the West, and the continued devaluation of African voices.

This thesis provides a narrative on schisms in the understanding of technology in the African, indigenous context and exposes the majority of foreigners as not conversant with such a context. These schisms, are fuelled by contrasting philosophies, epistemologies, methodologies, contextual realities, and, most importantly, world views. In Part II of this thesis I paint a stark picture of imported technologies that are often misaligned with the realities in Africa. This is the result of enshrined, long-term orientalist, imperialistic and colonialist practices in the conceptualisation, production and use of technology, leading to the exclusion and negation of African voices. In an effort to provide for an understanding of African value propositions, in Part III of this thesis I describe the ontological and epistemological setting that determines what is regarded as valuable in an African, indigenous context.

SQ5: What contemporary meaning do actors attribute to interaction with foreigners, in both the physical and spiritual realms?

Answer SQ5: In an indigenous, African context, meaning – in both time and place – is construed according to local virtue epistemologies (proposed here as *the Big Five*) with the meaning of interaction depending on the alignment of foreigners with such virtues in a phonocentric, interconnected, metaphysical consciousness.

This thesis shows that in an indigenous African context, and, in particular, in the setting of Macha Works, meaning is construed as embodied knowledge from interactions between people. Depending on the mediation of undeserved power and the labeling of behavior (as human or non-human), this thesis describes a framework for meaning making, provided by *the Big Five*. The Big Five – ubuntu, oratio, relatio, dominatio, and animatio – provide an indication of long-established systems of meaning making that are operational in the living, working and interacting with technologies in an sub-Saharan African place.

SQ6: How do actors aim to deal with their current and future existence in a connected world, taking coloniality into account?

Answer SQ6: *The Big Five* describes aspects of the cultural orientation of actors in an indigenous, African place that deal with relationships fueled by communal love, tat communice embodied knowledge, and involve relational resource allocation, in a mature way and in the continuous present moment.

This thesis deduces from interactions in the rural community of Macha, and from African places beyond, a hypothesis of five distinctive areas of virtues that provide perspectives on interactions in African communities.

Ubuntu is the crystallisation of an African philosophy and fundamental to the understanding of good behaviour in many parts of Africa. By aligning with *ubuntu*, members of the community balance rights and duties through embodied action in relationships. *Oratio* points towards the value and strength of oral communication as the prime vehicle of embodied conversation. In *oratio*, human communications integrate with human experience and interaction: *oratio* fuels narratives in tangible and observable realities for them to spawn deposits in embodied knowledge. *Relatio* provides the economic moulding of the handling of resources. In *relatio*, the community tracks the market of interpersonal and intercommunal transactions and sustains reciprocity, ensures sharing and balances relational accounts. *Dominatio* encourages maturity in dealing with (unsettling) events. In *dominatio*, communities support intentional and voluntary processes aiming for maturity in dealing with the multiple memories of the past and the uncertainties of the future. *Animatio* recognises human and non-human beings as connected in the material and immaterial worlds. In *animatio*, activities tune into a local rhythm, in a continuous present moment.

The Big Five are a moral, spiritual and cultural compass for communal life in sub-Saharan Africa. They are a foundation from which to piece together understandings from coexisting and mutually-interdependent experiences, allowing for multiple interpretations at the site of human embodied interaction. The interpretive agency of *the Big Five* resides in human interaction, mediated in the continuity of realities and experiences. *The Big Five* provides a view on how subjective processes can turn into situated knowledge. *The Big Five* resist the reconstitution of a cultural domination in which meaning making is primarily cognitive, abstract and information based. Instead, *the Big Five* espouse interactions in the present world with perspectives on how communities mediate risks in their scripting of interactions. Being part of an embodied knowledge repertoire, *the Big Five* reside in the continuously-changing lived realm and are dynamic.

In this work, I narrate how a third culture academic such as myself found dominion in rural Africa and performed research based on the requests of local African dignitaries. I

unfold how working from a African positionality is constrained by serious difficulties in finding an academic footing in a Eurocentric academia. My struggle was cleared up when I found the work of others who had struggled with the same issues before me. Subsequently, I associated an academic sensitisation by Michael Burawoy through his extended case study method with the many lessons learnt from the rural community of Macha in Zambia. I forged a breakthrough by aligning my research with a methodology that fuses the embodied knowledge from Macha and the writings of Burawoy.

Through methodologic and participatory research, reflecting on witnessed community engagement, workforce development and thought leadership, I was astounded by the influence of ongoing colonialism. From multiple case studies, I conclude we are living in the 'Age of Super-Colonialism'. This discovery pushed me, even more, to understand local knowledge by paying careful attention to *meaning making* in the African communities. I structured this arrangement in line what I have outlined as the Macha Works! Model, the International Development Model, and the recognition of paradigmatic diversity.

Duly grounded in local requests, local authority, local frames and methods, and embodied knowledge, I was able to recognise African virtue epistemologies. I started to see how the local community construes meaning and assembles agencies for engagement and interaction. I labelled my discovery *the Big Five*.

Although I started this research framed by specific research questions, during the testing of my hypothesis within the communities, with African academia and students and further afield, I began to notice the strength of the framework that *the Big Five* provides. *The Big Five* furnishes a robust language with which to frame discussions on the embodiment of meaning and knowledge – and, thus, agency – in local African communities. In subsequent interactions, *the Big Five* proved to be a valuable language with which to discuss, among other things, African cultural heritages, perspectives on international relationships between Africa and the rest of the world; assess interventions initiated from outside the community; and, last but not least, investigate how communities interact with technologies.

Technology development, this work shows, is deeply associated with colonial conduct. Of course, African communities assess the value of technologies primarily from their own positionality, culture and value systems (and paradigm), which are not understood or appreciated by those designing or implementing the technological innovations. Employing *the Big Five* to assess the implications accompanying technologies brings to light how most technologies and their services fail to align with African communities and local practitioners. *The Big Five* provide indications of the mismatch between the intentions of community and the functionalities of technologies. Therefore, it is no

wonder that foreign technologies are not taken up, abandoned or left to fail. *The Big Five* appears to be a robust framework that warrants attention to understand and sustain African thought leadership in local, national and international relationships.

On Technology

The recognition of super-colonial practices necessitates the questioning of the methodologies, ethics and non-inclusive systems of technology development. The resulting artefacts and functionalities influence us all, as can be witnessed in the case of mobile technologies, which a large part of the world population use on a daily or weekly basis. The colonising effects of existing frameworks and epistemic racism must be addressed. Its fall out has been explained here for sub-Saharan Africa, but the effects could well be the same for other non-included people groups who are cut off from the technical processes and unrelated to dominant parties. In this respect, one can think of those living in rural and disenfranchised areas, anywhere in the world.

The agency of Africa, the second largest continent in size and with a fast-growing population, must be strengthened and incorporated in global technology developments. It is important that dedicated research and development in Africa prioritises African challenges, situated within both African and global agendas. Such African research needs empowerment and sustenance. Globalisation will only be truly beneficial for all when it encompasses diversity. Contributions from African experiences must augment future technologies and their design in a collaborative effort to create a more just world. Local communities can flourish with, and through, technology only when inclusively developed. Technology contributions emerging from the crystallisation of African philosophies, notably ubuntu can contribute towards the integration of the values of inclusiveness and reciprocity, which need to underlie global networks. Africans should be heard in the mainstream of technology development, so that new technologies will not marginalise the continent and colonise its people, but will rather enable Africans to play their rightful role in the global community – for the benefit of all of humanity.

The contribution of this work consists of proposals for the construction of meaning and, thus, for setting the stage of the local answering of local and global questions. Thus, although having ‘answered’ the research questions to fulfil a traditional academic requirement, I would prefer that the answers be seen as proposals that await patiently the embodied interactions, located in time and space. Of course, this stance aligns with the guidance of the third stage of the Macha Works! Model: waiting for local talent to emerge and provide thought leadership.

At this point, I would like to talk again about *thought leadership*, which is the third stage of my methodology (see Chapter 4). Thought leadership is up to the 'local talent' (see Chapter 12). And although I have answered the research question, I would like to leave it up to local talent, embedded in the local community, to rediscover and test these answers (or proposals) for their applicability and 'truth', and to subsequently influence the stage for relationships with foreigners, interactions with technology, and the development of narratives for the future on the deployment of what technology in their community. It is the local talent – possibly empowered students of texts like this one – who are best positioned to show such thought leadership. As introduced in Chapter 2, thought leadership involves a holistic progression through five phases, namely: (1) careful positioning, (2) expressed permission, (3) tangible production, (4) capacity development, and (5) honourable representation. This text is only one contribution to these phases, but not to the thought leadership process itself. The latter is a recognition of the wholeness of embodied knowledge *in situ*.

Through the reconstructions following Burawoy's extended case method, in Part III, explaining the various models and *the Big Five*, some of the parts of thought leadership are filled with supporting content. However, as can be derived from the above, all aspects of thought leadership cannot and should not be fulfilled at this stage, as the process necessitates embodiment in (local) people. This work, necessarily exists – according to the Integral Development Model (see Chapter 8) – "to hold the space for change to come". It is difficult to show embodied knowledge in writing, the embodiment of the work can only be assessed in actual discussions[219], with all people present contributing.

So, with all of this in mind, this work, I propose, sheds light on the enormous and intricate complexity of cultural expression in what the capitalist elite depicts as 'the periphery'. The ethics and morality of African humanity, I dare say, are intricate and of high quality. The practice of African views on ethics and morality are the spice of daily life in Africa. Many respectable Africans display a sincerity that often stands in shrill contrast to the dehumanising manner of (super-)colonisers, in person as well as in written texts.

As a third-culture academic, born and raised in Europe and only initiated into Africa as an adult, it is rather difficult, and maybe impossible, to accurately 'tell an African story'.

[219] I intentionally use the word 'discussion'. *Ubuntu* (communal love) calls for reconciliation and strives for inclusiveness. In this setting, *opposition* needs to be accommodated and valued for its contribution, but not necessarily refuted. For example, the process of bringing in opponents for a PhD thesis defense is not aligned with *ubuntu* or *oratio*. It is like setting up a joust. Such a joust might appeal to a European audience as part of its processes of 'testing validity', but does not fit in with a communal African epistemology as presented in this work.

However, being involved since 1987, and fully immersed since 2000, with unique access to many and highly-varied communities, I hope that the hypothesis provided in this work can act as a *bridge* to give an indication of the various worlds-of-knowledge that exist outside the West. Hopefully, this work will carry some weight and foster respect for an African rendering of an African reality and its ethnographic understanding. No doubt, the world has much to gain from augmentation by embodied knowledge and its interesting ways of knowing emanating from Africa.

Inspired by the theoretical opportunities provided for by the extended case method of Burawoy [4] and recognising theory after applying the collaboratively developed Macha Works! Model and Integral Development Model, this work proposes a number of hypotheses as pieces of a jigsaw puzzle: '*the Terrible Three*' (Chapter 5), '*super-colonialism*' (Part II), paradigm switching (Chapter 8) and '*the Big Five*' (Chapters 14–17), among others. These concepts are conceived as basic hypotheses to facilitate an understanding of realities from a local positionality and perspective in Africa. *The Big Five*, provide a lens through which to view virtues in an African society and to see social architectures that socially reproduce. After such sensitisation, it is hoped that these concepts will provide a constructive manner with which to talk about an empirical world and to study its wider societal challenges, as well as how it sustains African cultural heritages and interacts with, and conceptualises, technology.

The concepts proposed in this thesis are theoretical contributions to the arrangement of a vision of the whole. By providing these contributions in the form of a letter to the governing authorities and presenting it, subsequently, to academia, this work is available for systematic critique to explore its internal contradictions and external anomalies. Anyone interacting with these musings is invited to add their lived experiences to this work. The results of this work are constituted only when part of an ongoing conversation and in the communal assessment of its content and possible relevance.

I do not claim to provide definitive descriptions. However, I endeavour to paint with words, providing narratives and conceptions that are positioned as a kaleidoscope to look through and reveal a perspective on African virtues. The results can sensitise people, both local and foreign, to what exists: a nuanced, complex and capable and an intellectually most-interesting and rewarding reality in Africa. Above all, the results are part of efforts of reciprocation towards local communities, African societies, and the rest of the world.

Positioning in the Body of Knowledge

I am not aware of other efforts to approach the subject matter of African society, technology, and philosophy from a longitudinal, reflexive and transdisciplinary position, as presented in this work. My aim is to serve the local community (first), the African communities (second) and the rest of the world (third). My ignorance of other attempts does not mean that such efforts do not exist. It is practically impossible to know that something does *not* exist. Here, I simply state that I am not aware of any (at the time of writing moment) and with my access to academic worlds at this time and in this (African) place.[220]

Readers in search of material guidance on how to solve Africa's material challenges – especially those defined as problems from a Western (economic) perspective – might be frustrated with this work. This work endeavours to provide philosophical insights proposed for wide consideration and illuminate pressing social issues that warrant integration into the approaches to African realities and their study. Further, this work endeavours to provide and present concepts that could be useful in analysing empirical and theoretical realities in Africa. Above all, I hope to inspired inquiry and alternative approaches and a belief that it is possible to propose African theories, boldly and freely, while being cognisant of and sensitive to (even while rejecting) dominant academic framings of reality. The value of this work, I believe, lies mostly in the exercise itself – how it has become embodied knowledge in me and possibly others – instead of its outcomes.

Further Research

By presenting this text as the appendix to a letter to the leadership at Macha Works, I humbly propose these views for scrutiny and consideration in Africa. Only after such consideration by the community, can thought leadership be situated. Consideration of thought leadership can set the stage for an ongoing conversation in communities (-of-practice) and safeguard its content by eliciting the guidance of governing authorities.

Further, failing to provide a definitive answer to the research question (and sub-questions) represents a reflexive critique of my academic privilege. As explained in Chapter 2, questions demand an answer and the process of writing positions me as a single person, an individual, which is contrary to *ubuntu*.[221] Decolonising processes must

[220] This statement should be regarded as an open invitation to anyone who reads this and knows anything that I do not know to connect with me.

[221] This situation is aggravated by the fact that only my name is on the cover. Although I make the case for my third positionality stance, by no means do I want to be seen as aligned with the

stand on just philosophical foundations [6:8]. This work tries to address some of these foundations and describes various components of such. However, of course, there is much more and continuous work needed.

This work yields many interesting questions, among which are:

- How do *the Terrible Three* – Orientalism, imperialism and colonialism – sit in African contexts?
- How can we deal with the fall-out of a bifurcating colonial practice, which is dispossessing Africans from their resources – in the natural, philosophical and spiritual realms – in a post-modern academic setting that has moved beyond those binaries, in effect denying Africans of a discussion on social justice?
- How can we deal with super-colonial practices, which have moved from the physical to the abstract (for example, such as electronic data-crunching algorithms, which have now become tools of imperialism and subsequently super-colonialism)?
- How can we step out of the colonial loops and boxes, which are sustained by foreign languages, systems and practices, and reconstitute exploitative and dispossessive entanglements?

This work is, therefore, recalcitrant with respect to some of the theoretical and epistemological burdens imposed by a dominant, although foreign to Africa, Eurocentric scholarship system. Its deductive process is non-linear; it is not cause and effect oriented, but applies an emotive, senso-motoric thinking. It is cognisant that, among much more, the English language, or any other language non-indigenous to Africa (e.g., my native language, Dutch), is not necessarily helpful.

A Narrative of the Future

> *In a time of drastic change it is the learners who inherit the future. The learned usually find themselves equipped to live in a world that no longer exists.*
> Eric Hoffer [7: loc 207]

This work argues that all understanding (and knowledge) is a matter of perspective affected by one's position(ality) in time and place. An African perspective, set in African perceptions of time and space, seems not to be widely known, if at all, or respected beyond Africa. African virtues, as introduced in *the Big Five*, I believe, give a handsome perspective on a cultural heritage of sub-Saharan African places. They are, I suggest,

colonial practice that seeks persons embedded in the imperial centre to speak on behalf of (super-)colonial subjects.

helpful in framing a narrative of the future. Such a narrative exists in a shrinking world (as a result of globalisation), which can only avoid total super-colonial 'Westernisation' through the celebration of diversity in cultures and the incorporation of different epistemologies. This requires the valuing of the moral undergirding of society – its virtues. So, what could be such a narrative?

In my view, there is no 'next thing' in such a narrative of the future. In a world system infested with super-colonialism, it is not prudent to have a 'next thing' as it would be prone to constitute super-colonialism. Instead, there is a need for 'a new thing'. Therefore, being sensitised (by works like this) to 'the times we live in', we must be ready 'to move on', to vacate where we are and enter something new. However, this necessitates a careful understanding of contemporary times. Nevertheless, the foundation for this change will remain the enduring strengths of a long African cultural heritages, in this document approached in *the Big Five*, which provide for stability in change.

Change can happen 'suddenly' and unexpectedly, as Mirjam Van Reisen showed in her book on Europe at the time of the demise of the Berlin Wall, in which she employs the concept of a 'window of opportunity' [8]. Such a window could be about to open in Africa due to the long-term upsurge of young people in Africa, or uproars such as, for instance, #Rhodesmustfall and #feesmustfall movements in South Africa. Other potential tipping points could be triggered by the increasing attention being focused on land reforms in Southern Africa, and there could be emerging narratives on issues not yet on most radars. Hopeful signs abound; for instance, the Great Zimbabwe University (GZU) is contemplating starting an academic school of 'Cultural Heritage and International Diplomacy' in Masvingo, Zimbabwe and the Mosi-O-Tunya University of Science and Technology (MUST) is embarking on academic courses for disenfranchised African students, over the Internet from Lusaka, Zambia. Whether or not these initiatives mature, these kinds of proposals have been continuously emerging and are ready to be set free.

Proposing a narrative of the future risks putting the brakes on the agency of African academics, as they would be engaged in answering questions about Africa that the people of Africa are not asking, instead of working to their own agenda. It is time for African academia to attenuate the referencing from a dominating and polluted academic repository situated in the West, and prioritise engaging with African thoughts, not about what *was* said by foreigners, but what *is* being said by Africans about Africa.

So, what is being said? I leave it up to you, reader, to hear. When I stop writing, I have stopped contributing to this text. However, it is my hope that you are with me in awe of what has been heard, what has been seen, and what has been learnt. Former South

African President, Thabo Mbeki, puts it eloquently from his positionality at the southern tip of Africa. Here I reproduce what he said in 1996 when discussing the South African constitution on what it means to him to be *African*.

I am an African.

I owe my being to the hills and the valleys, the mountains and the glades, the rivers, the deserts, the trees, the flowers, the seas and the ever-changing seasons that define the face of our native land.

My body has frozen in our frosts and in our latter-day snows. It has thawed in the warmth of our sunshine and melted in the heat of the midday sun. The crack and the rumble of the summer thunders, lashed by startling lightning, have been a cause both of trembling and of hope.

The fragrances of nature have been as pleasant to us as the sight of the wild blooms of the citizens of the veld.

The dramatic shapes of the Drakensberg, the soil-coloured waters of the Lekoa, iGqilinoThukela, and the sands of the Kgalagadi, have all been panels of the set on the natural stage on which we act out the foolish deeds of the theatre of the day.

At times, and in fear, I have wondered whether I should concede equal citizenship of our country to the leopard and the lion, the elephant and the springbok, the hyena, the black mamba and the pestilential mosquito.

A human presence among all of these, a feature on the face of our native land thus defined, I know that none dare challenge me when I say – I am an African!

I owe my being to the Khoi and the San whose desolate souls haunt the great expanses of the beautiful Cape – they who fell victim to the most merciless genocide our native land has ever seen, they who were the first to lose their lives in the struggle to defend our freedom and independence and they who, as a people, perished in the result.

Today, as a country, we keep an inaudible and audible silence about these ancestors of the generations that live, fearful to admit the horror of a former deed, seeking to obliterate from our memories a cruel occurrence which, in its remembering, should teach us not and never to be inhuman again.

I am formed of the migrants who left Europe to find a new home on our native land. Whatever their own actions, they remain still part of me.

In my veins courses the blood of the Malay slaves who came from the East. Their proud dignity informs my bearing, their culture a part of my essence. The stripes they bore on their bodies from the lash of the slave master are a reminder embossed on my consciousness of what should not be done.

I am the grandchild of the warrior men and women that Hintsa and Sekhukhune led, the patriots that Cetshwayo and Mphephu took to battle, the soldiers Moshoeshoe and Ngungunyane taught never to dishonour the cause of freedom.

My mind and my knowledge of myself is formed by the victories that are the jewels in our African crown, the victories we earned from Isandhlwana to Khartoum, as Ethiopians and as Ashanti of Ghana, as Berbers of the desert.

I am the grandchild who lays fresh flowers on the Boer graves at St Helena, [unclear], and the Vrouemonument, who sees in the mind's eye and suffers the suffering of a simple peasant folk, death, concentration camps, destroyed homesteads, a dream in ruins.

I am the child of Nongqawuse. I am he who made it possible to trade in the world markets in diamonds, in gold, in the same food for which our stomachs yearn.

I come of those who were transported from India and China, whose being resided in the fact, solely, that they were able to provide physical labour, who taught me that we could both be at home and be foreign, who taught me that human existence itself demanded that freedom was a necessary condition for that human existence.

Being part of all of these people, and in the knowledge that none dares contest that assertion, I shall claim that – I am an African.

I have seen our country torn asunder as these, all of whom are my people, engaged one another in a titanic battle, the one to redress a wrong that had been caused by one to another and the other, to defend the indefensible.

I have seen what happens when one person has superiority of force over another, when the stronger appropriate to themselves the prerogative even to annul the injunction that God created all men and women in His image.

I know what it signifies when race and colour are used to determine who is human and who, sub-human.

I have seen the destruction of all sense of self-esteem, the consequent striving to be what one is not, simply to acquire some of the benefits which those who had imposed themselves as masters had ensured that they enjoy.

I have experience of the situation in which race and colour is used to enrich some and impoverish the rest.

I have seen the corruption of minds and souls as a result of the pursuit of an ignoble effort to perpetrate a veritable crime against humanity.

I have seen concrete expression of the denial of the dignity of a human being emanating from the conscious, systemic and systematic oppressive and repressive activities of other human beings.

There the victims parade with no mask to hide the brutish reality – the beggars, the prostitutes, the street children, those who seek solace in substance abuse, those who

have to steal to assuage hunger, those who have to lose their sanity because to be sane is to invite pain.

Perhaps the worst among these, who are my people, are those who have learnt to kill for a wage. To these the extent of death is directly proportional to their personal welfare.

And so, like pawns in the service of demented souls, they kill in furtherance of the political violence in KwaZulu-Natal. They murder the innocent in the taxi wars. They kill slowly or quickly in order to make profits from the illegal trade in narcotics. They are available for hire when husband wants to murder wife and wife, husband. Among us prowl the products of our immoral and amoral past – killers who have no sense of the worth of human life, rapists who have absolute disdain for the women of our country, animals who would seek to benefit from the vulnerability of the children, the disabled, and the old, the rapacious who brook no obstacle in their quest for self-enrichment.

All this I know and know to be true because I am an African!

[…]

I am an African.

I am born of the peoples of the continent of Africa.

The pain of the violent conflict that the peoples of Liberia, and of Somalia, of the Sudan, of Burundi and Algeria is a pain I also bear.

The dismal shame of poverty, suffering and human degradation of my continent is a blight that we share.

The blight on our happiness that derives from this and from our drift to the periphery of the ordering of human affairs leaves us in a persistent shadow of despair.

This is a savage road to which nobody should be condemned. The evolution of humanity says that Africa reaffirms that she is continuing her rise from the ashes.

Whatever the setbacks of the moment, nothing can stop us now! Whatever the difficulties, Africa shall be at peace! [6]

In Closing

I came in a spirit of profound solidarity and respect. I am convinced that the world has much to gain from African wisdom, ideas and solutions.

António Guterres [12: online]

This textual community deposit represents the status of my academic musings *in situ* in an African society at an instance in time and place. It is the appendix to my letter communicating about embodied knowledge to Macha Works. It is also positioned as a

text made available for academic assessment for recognition as a doctoral thesis in Europe.

Moving to live in a rural Zimbabwean place in 2000 and subsequently in a Zambian village in 2003, was an act of displacement. I became situated in deep-rural Africa. All of my political components changed, as did my relationships and the meaning of my embodiments. Social and collective dynamics also changed, as was my positionality.

This document presents a hermeneutic and symbol-interactionalistic perspective on academic research, from the perspective of my struggle as a third-culture researcher (both in belonging and academic grounding), juggling with juggernauting balls of various epistemologies, racial profiling, and a mix of worldviews and paradigms in a constant state of cognitive dissonance.

The text tries to strike a balance, through the facility of a monograph, with the need for embedded knowledge in an African society. Therefore, I am grateful for, and wish to explicitly recognise, the contribution of everyone I have interacted with, the whole of my life and, specifically, during this research. Each interlocutor and each academic has invested in a relationship with me, and I am utterly grateful. I am also grateful to all my co-authors who responded to my invitation to collaborate and who pushed for the publication of community deposits in their environments.

Due to the limits of a thesis, I must stop writing at some point. However, I have omitted an enormous amount of material, all worthy of further exploration and analysis, of further *embodiment*, which I intend to pursue in collaboration with peers, students, leaders, and whomever is willing to be part of my life.

This text is the equivalent of a photo-album that, as one thumbs through it, solicits some ‘ohs’ and ‘ahs’ and, hopefully, the desire ‘yes, I want to experience this!’. I invite all who take the time to thumb through this work to, indeed, get involved, to engage, to start contributing to the process of embodied knowledge, the sharing of one’s God-given resources, to reconcile often non-integrated pasts towards a committed future of mutual peace and togetherness, in the knowledge that we all have a responsibility to love our fellow humans and ourselves.

This thesis is a declaration of my eye witness experiences and my academic efforts to provide a rendering of meaning. It endeavours to be of transdisciplinary relevance to many diverse fields, including the social and natural sciences, in particular information and communication technology. It contains my reflexive interpretations of the empirical evidence, as presented to me in my 24-hour-a-day, 7-days-a-week, 365-days-a-year

involvement in Africa, starting in 1987 and full-time embedded since 2000. Its interpretations are crystalized in embodied knowledge, put up for scrutiny through my constant and active engagement in African societies and abroad.

This document is an effort to rubbish some universally held beliefs so as to show that they are limited and colonial – or that they constitute what Ramon Grosfoguel calls "epistemic racism" [10]. This document is an instance of inter-epistemic interaction in a 'horizontal mode', in which I expand from the extended case study of Macha to make more generic contributions. It represents an effort to show an overlapping and intersecting picture of how globalised super-colonialism affects us all[222], from a bottom up reflection on the observed realities in Macha, Zambia, Zimbabwe, and beyond. The format and content fight the idea that colonialism is a technocratic problem, to be studied in isolation. I attempt to strike a balance between decontextualized knowledge (as in text) and the knowledge that emerges from *experience*. From an extended case study, sensitised by Michael Burawoy, but done in an epistemology and methodology home-grown in Macha and sub-Saharan Africa in general, the study endeavours to show connections and intersections between the issues involved.

The academic world appears to be highly compartmentalised and dominated by mainly the legacy of a few men from northern Europe [10]. This study seeks to provide an integrated contribution, from an understanding of the local value system in sub-Saharan Africa and ontologies embedded in such. It provides some rudimentary hypotheses on how to counter universalism and augment the body of knowledge through pluralism. It shows values that counter inequality by sustaining communality, and it is hoped that the associated methods and ideas can counter the dominant narratives that condone and underpin the plunder of Africa that continues.

This work proposes guidance on how a well-positioned leadership could act upon its cultural heritage in international diplomacy: following its higher calling by patiently holding the space for people to grow, for communities to take up their banners and go, in *ubuntu*. This needs faith: a boldness to *be present*, while recognising both greatness and despair, to *be sensitive* about when to wait and when to act, and to *be inspired* by a belief in human potential and the certainty of African social strengths – based on a worthy cultural heritage. *The Big Five* illuminates a perspective on African virtues – in relationships, conversations, sharing, maturity and presence – as shown in this work. I

[222] Martin Luther King Jr. penned the following: "Injustice anywhere is a threat to justice everywhere. We are caught in an inescapable network of mutuality, tied in a single garment of destiny. Whatever affects one directly, affects all indirectly" [11: online].

humbly propose that this perspective could inspire such a faith. A faith that acts to sustain Africans to recognise and reach their collective and individual potential.

Conclusion

This thesis reports on my inquiry of how people in African communities interact with other people on the subject of technology. In this letter, I provide my perspectives and practice in dealing with contextual sensitivities and theories of knowledge. Further, I present insights gleaned from participatory research engagements in the rural community of Macha, in Zambia, and in other African communities. Lastly, I propose additions to theory by portraying an age of super-colonialism and a rendering of an African virtue epistemology that I labelled The Big Five.

In Macha, Zambia, on 12 July 2012, I wrote:

> *When affects are ascribed to technology people might deem it the cause. This instils false dogma. Although technology is valuable, it remains an inorganic artefact.*
> *Life's focal point is people. They are the dazzling subjects, the centre of earthly existence. Here morally-unable submit to the morally-able, and thus technology submits to people.*
> *Living people's interactions are fruitful when empathy and compassion are facilitated in an ethical setting, while serving other's well discerned needs in peace. Within their context and culture, people do experience joy, discern wisdom, and recognize knowledge. Technology never does. Everywhere not-living technology can assist in absolute wonderful and stunning ways, or it can obstruct and even destroy.*
> *Through distinct phases of bewilderment and amazement we reach out to expert and use technology. When technology is constructed to be appropriate – that is: to converge upon people's needs – it can be helpful. Mastered and controlled by people, technology's utilization can be purposeful and innovative.*
> *Technology facilitates, it cannot not drive. Technology amplifies, it cannot initiate. Technology assists, it cannot lead. Technology does not determine, nor dictates: it serves*. [13]

To ensure peace, equity, and justice, I aspire to a symmetric world. From my African positionality and the revelations entrusted to me, I derive a moral imperative to address the asymmetric power dynamics that exist in the development and use of technologies. From my observations in rural Africa, I am convinced that technologies cannot lead but should be positioned in a serving capacity. When technologies exist to serve, one is

forced to address the moral/ethical context for its development and deployment. African environments, I conclude, are severely challenged by super-colonial narratives and actions. Through the Big Five, I reflect on African moral/ethic settings embedded in communal love. I argue that the Big Five can fuel and sustain counter narratives and actions to persisting super-colonial practices and provide guidance of respectful and level performances, also in technology.

The extended case study of Macha Works yields models that, I argue in this thesis, in their existence, indicate such respectful practice. Although these models can guide interactions of African practitioners with foreign experts, these models are not presented as prescriptive as if to safeguard technologies to emerge in 'the right approach'. However, the models gleaned from Macha Works and others have value in their agency to create space. They provide for poignant reference points in conversations, talking points for when people meet and discuss in the nexus of society and technology. In summary, I claim, the reflections presented in this thesis are fruitful to engender 'embodied knowledge': a knowledge that can also inform technology production and utilisation, a knowledge that is generated in community, inclusive of all, in an African place.

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Appendices

Contents

Appendix I. Acknowledgements

This work would have been impossible without the *communal grace* of communities of people and practice, worldwide. This work represents a collaborative effort, a banner on the work of the many that instilled knowledge in me. Without continuous cross-fertilisation, it would not have grown to the current stage, nor will it continue to grow.

I am indebted to the leadership of Chief Macha, leaders in the Governments of the Republics of Zambia and Zimbabwe, in various institutions in the rural and urban communities in Southern Africa, and numerous friends. The Mweetwa and Bishi families, among many others, I thank for their love and sacrifices, both in efforts and time to serve their communities which include my family and myself. I salute your constructive stances in face of objectivation, racial coding, expectations of comfort, colonial relationships, lack of freedom, liberalism, individuality, meritocracy, and western centrality, while you sift out contradictions and act against the oppressive elements of reality.

Further, without the visits and encouragements of Gerard van Oortmerssen, there would have been no academic alignment, without the stamina of Mirjam van Reisen, no academic platform nor writing, and without the enthusiasm of Munyaradzi Mawere no fortitude to write what I wrote here.

I thank for any love expressed to this human being. I acknowledge the communal love of my family. Above all, thank you, Janneke, for complementarity, kindness, and long-suffering, and other evidence of the fruit of the Spirit.

In the face of the 'Terrible Three', super-colonialism, and the worldwide neglect of the African voices, it takes courage to not be discouraged. I received such courage in embodied forms from Africans and non-Africans alike and with that an abundance of joy, knowledge and wisdom. I thank all and sundry who have encouraged and confided in me. I am utterly in awe of God's provisioning, love, and the Spirit, and truly grateful for all interactions that are signs of being included, of sharing stories and resources, to grow in maturity, and, above all, to live life, life to the fullest!

Last, but not least, thank you, reader, for your undertaking with the words in this document. "To be visited is to be blessed" is a saying in the Tonga language. Thank you for visiting the unburdening that this document contains. I pray you will be blessed to be a blessing! Without the community of people worldwide I am *not*. We all need each other in the orchestra of life.

I am standing on the shoulders of the ones who came before me
I am stronger for their courage, I am wiser for their words
I am lifted by their longing for a fair and brighter future
I am grateful for their vision, for their toiling on this earth

We are standing on the shoulders of the ones who came before us
They are saints and they are humans, they are angels, they are friends
We can see beyond the struggles and the troubles and the challenge
When we know that by our efforts things will be better in the end

I am standing on the shoulders of the ones who came before me
I am honored by their passion for our liberty
I will stand a little taller, I will work a little longer
And my shoulders will be there to hold the ones who follow me

By Joyce Johnson Rouse

Appendix II. Curriculum Vitae

Gertjan Van Stam, born 13 September 1965 in Rotterdam, the Netherlands.

Personal statement: Gertjan Van Stam resides in Harare and Masvingo, Zimbabwe, since December 2012 and March 2015 respectively. He was resident at Macha, Zambia, from March 2003 till December 2012. He holds an MTech (cum laude) from Nelson Mandela Metropolitan University (RSA) and is a Research Fellow at the Science and Industrial Technology Development Centre (SIRDC) in Zimbabwe. He has been involved with strategic developments in ICT in Africa since 1987. He engages in continuous transdisciplinary action research and disseminates his deductions in person and writings within local, national and international settings.

Goal: Gertjan's goal is to engender recognition of indigenous progress in communities and to identify and inspire local talent. His academic quest is for a contextual, cultural framework on the outset and dynamics of change in Africa.

Experience: Gertjan has had broad exposure in many contexts and cultures, including in leadership and in developing innovative methods and systems. He has global experience in infrastructure, information and communications technologies, engineering, social ecosystems, and sustainable progress.

Places of residence: He has lived in urban and rural areas, in Belgium, India, Netherlands, Swaziland, Zambia and Zimbabwe.

http://www.vanstam.net/gertjan-van-stam

Appendix II, Curriculum Vitae

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25. Van Stam, G. (2013). African Engineering and Colonialistic Conditioning. *Fifth International Conference on e-Infrastructure and e-Services for Developing Countries, Africomm 2013*, 25–27 November, Blantyre, Malawi.
26. Van Stam, G. (2013). Circumstances and Experiences concerning Education for Innovation. *Computer Society of Zimbabwe Summer School 2013*, Victoria Falls, Zimbabwe.
27. Van Stam, G. (2013). *A Strategy to make ICT accessible in Rural Zambia: A Case Study of Macha*. Port Elizabeth, South Africa: Nelson Mandela Metropolitan University.
28. Ahmat, D., Bissyandé, T. F., Klein, J., Le Traon, Y., Ouoba, J., & Van Stam, G. (2014). Sustainable ICT4D in Africa: Where Do We Go From Here? T. F. Bissyandé & G. Van Stam (eds), *e-Infrastructure and e-Services for Developing Countries, 5th International Conference, Africomm 2013, 25–27 November, Blantyre, Malawi, Revised Selected Papers* (pp. 95–103). Springer International Publishing.
29. Mudenda, C., Johnson, D. L., Parks, L., & Van Stam, G. (2014). Power Instability in Rural Zambia, Case Macha. In: T. F. Bissyandé & G. Van Stam (eds), *e-Infrastructure and e-Services for Developing Countries, 5th International Conference, Africomm 2013, Blantyre, Malawi, November 25-27, 2013, Revised Selected Papers*. Berlin, Heidelberg: Springer International Publishing.
30. Bishi, J., Gamundani, A. M., & Van Stam, G. (2013). Assessing the potential of eAgriculture in Zimbabwe. *Fifth International IEEE EAI Conference on e-Infrastructure and e-Services for Developing Countries (Africomm 2013)*, 25–27 November 2013, Blantyre, Malawi. Blantyre, Malawi.
31. Brooking, G. D., Hapanyengwi, G., Kembo, S. H., & Van Stam, G. (2013). Progressing Services in African Mobile Networks utilizing Big Data Research. *Fifth International IEEE EAI Conference on e-Infrastructure and e-Services for Developing Countries (Africomm 2013)*, 25–27 November 2013, Blantyre, Malawi.
32. Van Stam, G. (2013). Thought Leadership in e-Governance, e-Infrastructure, and e-Business in Africa. *Fifth International IEEE EAI Conference on e-Infrastructure and e-Services for Developing Countries (Africomm 2013)*, 25–27 November 2013, Blantyre, Malawi. Blantyre, Malawi.
33. Mason, A. C., Afari-Dekyi, K., Ansotinge, E., Antwi, J., Chifwaila, L., Fraser, F., … Wales, A. (2013). *Building Capacity for Remote, Rural Knowledge Exchange: A Global Health Collaboration.* NHSScotland Event. Glasgow, UK.
34. Van Stam, G. (2013). *Towards Positioning Gateway in the Education Revolution*. Harare, Zimbabwe.
35. Van Stam, G. (2013). *Positioning of IEEE to validate Blended Learning, and Case Africa.* Harare.

36. Van Stam, G. (2013). eLearning in Africa and the Opportunity for Innovative Credentialing. *Fifth International IEEE EAI Conference on e-Infrastructure and e-Services for Developing Countries (Africomm 2013)*, 25–27 November 2013, Blantyre, Malawi. Blantyre, Malawi.
37. Van Stam, G. (2013). Inclusive Community Engagement in Social Innovation, Case Africa. *Fifth International IEEE EAI Conference on e-Infrastructure and e-Services for Developing Countries (Africomm 2013)*, 25–27 November 2013, Blantyre, Malawi. Blantyre, Malawi.
38. Van Stam, G. (2013). MOOCs, An Opportunity for African Influence in Western Civilisation? *eLearning Africa, 29–31 May 2013*, Windhoek, Namibia.
39. Kroczek, A., Mweetwa, F., & Van Stam, G. (2013). Stakeholder Theory and ICT in Rural Macha, Zambia. *5th Annual International Conference on ICT for Africa (ICT4Africa)*, 20–23 February 2013, Harare, Zimbabwe.
40. Malichi, A., Van Oortmerssen, G., & Van Stam, G. (2013). A Novel Model for Academic, Transcultural, and Global ICT Education, employing the full potential of ICT. *5th Annual International Conference on ICT for Africa, 20–23 February 2013*, Harare, Zimbabwe.
41. Van Stam, G. (2013). The Unfolding Revolution in Education. Association of Computer Teacher Zimbabwe, ACTZ, 11 February 2013. Harare, Zimbabwe.
42. Van Stam, G. (2013). Experience of Providing Wireless Access to Rural Communities. *Policy Dialogue by the South African Department of Science and Technology and the European Union in partnership with the HSRC on 'Extending access and connectivity across rural communities in South Africa', 12 Feb 2013*, Pretoria, South Africa.

Appendix IV. List of Presentations, Lectures and Keynote Speeches, 2013–2016

1. Van Stam, G. (2016). Keynote Address: Orientalism Embedded in Foreign Narratives of Technology for Development. 1st Institute of Lifelong Learning and Development Studies International Research Conference, Chinhoyi University of Technology, 2–5 August 2016, Chinhoyi, Zimbabwe.
2. Van Stam, G. (2016). Keynote address: African Engineers and the Quest for Sustainable Development: Levelling the Ground for all Players. IEEE PES Power Africa, 28 June–2 July 2016, Livingstone, Zambia.
3. Van Stam, G. (2016). Presentation: Remittances and Health, African Reality Check. Research Network "Globalisation, Ageing, Innovation and Care (GAIC) The Hague, the Netherlands, 15 April 2016.
4. Van Dijk, J. H., & Van Stam, G. (2015). Remittances in Zimbabwe. Working Party Remittances for Health Care, 17 September 2015, Nairobi, Kenya.
5. Great Zimbabwe University, 'Coloniality and the Big Five', Masvingo, Zimbabwe, 22–23 September 2015
6. Erasmus University Rotterdam, Minor Global Health lecture series, 'Cultural Diversity', Rotterdam, Netherlands, 10 September 2015
7. Hospital Management Teams, Morgenster and Gutu Missions, 'Contextual Strategy and Leadership, Africa's Big 5', Masvingo, Zimbabwe, 28 August 2015
8. Ministry of Health and Child Welfare, 'Health, ICT Enabled, Case Brown Bag', Masvingo, Zimbabwe, 6 August 2015
9. Philips Research, 'Paradigm Clash', Eindhoven, the Netherlands, 23 June 2015
10. University of Cape Town, 'Paradigm Clash', Cape Town, South Africa, 26 February 2015
11. University of the Western Cape, 'Paradigm Clash', Bellville, South Africa, 25 February 2015
12. Tilburg University, Advisers Research Group Globalisation, Ageing, Innovation and Care (GAIC), 'Exchange in Health Care between Europe and Africa – a critical perspective from Southern Africa', Tilburg, Netherlands, 16 January 2015
13. IEEE Head Quarters, IEEE Management Team, 'Vision and Overview on IEEE and Africa', Piscataway NJ, USA, 6 January 2015
14. Computer Society of Zimbabwe, Summerschool on IT-Governance: A Pillar for Development, 'ZIMASSET and Opportunities for African ICT, What Shall We Be?', Victoria Falls, Zimbabwe, 14 November 2014

15. University of Zimbabwe, RAE Workshop 4 on Enriching Engineering Education in Southern Africa, 'Experience in Research and Development in (Rural) Africa: Towards an African Expression of Technology', 6 November 2014, Harare, Zimbabwe
16. Amsterdam University Collage, Minor The Changing World of International Relations, 'An Introduction to Imperialism & Rural African Experiences', 23 October 2014, Amsterdam, Netherlands
17. Amsterdam University College, Minor HR and International Law, 'Social Innovation', 23 October 2014, Amsterdam, Netherlands
18. University of Zimbabwe, Department of Engineering, 'Social Innovation in Zimbabwe', 16 September 2014, Harare, Zimbabwe
19. Erasmus University, Minor International Health & Tropical Medicine, 'An introduction to Social Innovation in (Rural) Africa', 26 August 2014, Rotterdam, Netherlands
20. Scientific and Industrial Research and Development Centre (SIRDC), 'Information and Communication Technologies and Rural Development, Informatising Zimbabwe', 26 June 2014, Harare, Zimbabwe
21. University of Western Cape (UWC), Computer Science Dep., 'Research, Context and Implementation', 17 April 2014, Cape Town, South Africa
22. Human Sciences Research Council of South Africa (HSRC), 'Thoughts on African content and implementation strategies involved in ICT access in (rural) Africa', 25 March 2014, Pretoria, South Africa
23. Medical and Health Expo – Digitalisation of Medical Industry Workshop, 'ICT, Health Care and Big Data', 4 December 2013, Harare, Zimbabwe
24. Computer Society of Zimbabwe Summerschool 2013, ICT Opportunities in Development. African Agriculture/Health/Social Services, 15 November 2013, Victoria Falls, Zimbabwe
25. Computer Society of Zimbabwe Summerschool 2013, Liberating Technologies, from Research to Progress, 14 November 2013, Victoria Falls, Zimbabwe
26. Technology For Teaching And Learning Forum 2013, 'African e-Learning, a Call for Exploring MOOCs and All', 17 October 2013, Sandton, South Africa
27. International Symposium on Infectious Diseases in Resource Limited Environments in Africa, 'Lessons Learned from the African Culture: Global Impact?', 2 September 2013, Rotterdam, Netherlands
28. Van Stam, G. (2013). ICT, Health and Big Data. In Health Expo 2013. Harare, Zimbabwe.